UNIVERSAL
LIBRARY

OU_158968

UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No. 629.1324/T58N Accession No. 34537

Author Tirrell, L. L.

Title Nature's contribution to aeronautics

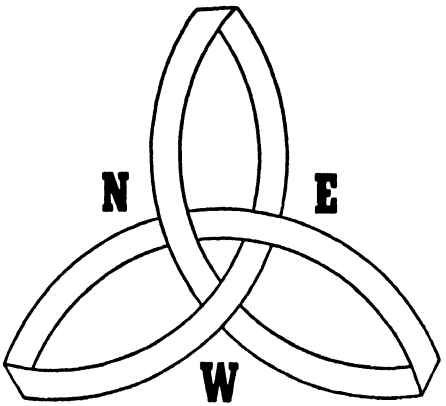
This book should be returned on or before the date last marked below. 7.53

NATURE'S CONTRIBUTION TO AERONAUTICS

NATURE'S ELECTRONIC WORLD SERIES

NATURE'S CONTRIBUTION TO AERONAUTICS

By LESLIE LIVINGSTONE TIRRELL



PUBLISHED UNDER THE AUSPICES
OF N. E. W. PHYSICAL RESEARCH

LOS ANGELES
BORDEN PUBLISHING COMPANY
1953

COPYRIGHT 1953 BY LESLIE LIVINGSTONE TIRRELL

PRINTED IN THE UNITED STATES OF AMERICA
Library of Congress Catalogue Card Number: 53-7780

NATURE'S ELECTRONIC CONTRIBUTION TO AERONAUTICS

Fifty years ago the Wright Brothers startled the world at Kitty Hawk by flying a heavier than air contraption for a few minutes. The feat was regarded as a miracle of engineering genius. Conquering the air for only a few minutes encouraged the art of flying, but little hope was expressed for utilizing the airplane for profitable exploitation.

The airplane, at that time, was thought to be a nice plaything for the sport of risking one's life, for it took brave and reckless young men to rise into the air, fly like a bird, defy the laws of gravity and conquer the predictions of the scientific world which firmly stated that a heavier than air plane would never be practical for transportation. The physical laws founded on the knowledge of air at that time supported this prediction.

The first decade of experimental progress was devoted to the designing of planes with the flimsy structure that would eliminate weight, yet provide strength to the structure. There was a firm conviction outlined by scientific predictions that the weight of the plane must not exceed the weight and pressure of air which it displaced when in motion.

The development of more powerful motors produced more speed with the result that more air passed the airfoils, lift was gained and greater weight and strength to the structure could be added.

Biplanes were the order of the day because two air foils were thought to be better than one. A plane 2000 pounds gross weight with single wing structure appeared to be the limit of weight that could safely negotiate the thin air. A limited speed of about 100 miles per hour with a take-off speed of 50 to 60 miles per hour against a head wind. The worst mistake a pilot could make was to take off or land down-wind.

In the next two or three decades larger, heavier planes were built and flown until it is a common sight to see planes of 200,000 pounds weight sailing majestically through the same tenuous air that science had formerly stated would be an impossibility. These planes are one hundred times heavier, carry one hundred times the load as those manufactured twenty years previously.

Yet it is not necessary for them to fly one hundred times faster.

Have the Aerodynamists discovered a new component in the atmosphere?

Have they discovered a new method for conquering the physical force of gravity?

Have they developed new mechanical processes for utilizing the constant and uniform density of air?

How does a plane weighing 200,000 pounds fly at an altitude where air is so rarefied that a man cannot live, an engine cannot be made to run unless oxygen is fed to both man and engine?

What is the buoyancy of air at 50,000 feet altitude?

Why does a jet plane gain speed in higher altitudes?

When the answers to these questions are found, then and only then can the resultant forces necessary for reaction to a plane in flight be disclosed which will permit 200,000 pounds of plane to leave the ground.

With the known properties of air advocated by science it is impossible to present a mathematical equation that will explain why an airplane of 200,000 pound gross weight will fly anymore than it is possible to prove a bumble-bee will or can fly.

But they both do fly.

The experimental progress made in designing, testing and building planes for an atmosphere irrevocably fixed as to the components, the weight and the pressure, which are relative to the barometric evaluation, makes it imperative that the structure follow set rules learned in the previous models by experimentation. There seems to be a gap in the knowledge previously proposed and the dynamic forces of the atmosphere. In other words, the engineers have bridged the gap by progressive trial and error testing of designs, but, they have not been able to account for the performance of the plane in air that

actually weighs less than 1.2 ounces per cubic foot at sea level.

The paradoxical claim that implies 1.2 ounces of per cubic foot can have a weight-pressure of 14.7 pounds per square inch at sea level (diminishing in a steady gradient with altitude) leaves the aerodynamist out on a limb floating on an ether complex of nothing when the plane reaches its limited altitude in the atmosphere.

If there is a coordination of air with plane performance presented with a mathematical evaluation there must be a natural reaction in the atmosphere which science or the aerodynamist have been unable to disclose, which can be adapted to the dynamic problems of gravity, inetria, velocity and their relation to buoyancy of the atmosphere as a whole. Air alone does not represent the atmosphere. Air is only one of the components of an atmosphere that is recognized as extending to approximately five hundred miles from the surface of the earth.

The laws governing the concept of the atmosphere of the Sixteenth and Seventeenth Centuries, which were and are now regarded as inviolable, cannot be applied to the discoveries made since that date.

Previous to the Sixteenth Century the early scientists classified the elements of the earth in four general categories: Fire, earth, sky and water, which were the cardinal elements from which creation and all creative matter were derived. From the dust of the earth man was created: From the sky life was instilled into his being: Water furnished the sustenance of life: Fire maintained the energy for his growth and comfort. The heat from the sun energized all living and growing things on the earth.

The mystery of the earth's elemental composite was soon classified as atomic or atomic combinations in molecular form. Water was identified as H_2O, that is, hydrogen and oxygen were the only elements that could be extracted from pure water. The limited exploration of the sky resulted in the presentation of many hypotheses and theories which were never proven. The whole atmosphere was regarded as ether. When oxygen and nitrogen was discovered to be the life-giving components of the ether, they displaced just so much ether.

The weight of air, then, was determined by its specific gravity in the ether complexity. It was further determined with the barometer that air reached only to a limited height in the ether, or sub-ether, which was regarded as a partial vacuum.

However, Fire is as great a mystery today as it was when these philosophers and zealots thought of fire as Nature's greatest cleansing agent. It still is, but the flame of fire appears to be as ethereal as the heat. This was explained by the early scientists, as a product of the air or ether which combined with the decomposed matter, a mysterious something called "phlogiston" which was never destroyed, but contributed its energy to fire and caused an agitation in matter to constitute visible fire and invisible heat.

This philosophy was abandoned when it was discovered that oxygen was the element that supported fire. However, oxygen apparently followed the exact procedure of "phlogiston" by contributing an invisible something that was not destroyed or annihilated. Furthermore, oxygen collected this invisible energy to be regenerated over and over again after its contribution. So it may be observed that oxygen functioned in much the same way as "phlogiston", but that mysterious energy of oxygen has not been disclosed by any of the classical laws accepted by science.

That imponderable something that energized oxygen occupied the attention of Newton, Kepler, and other scientists at the time.

A notable advancement was made when it was conceived that corpuscles were responsible for creating the fire, heat and light, but no consideration was made which could link oxygen with the corpuscles or with phlogiston. The presence of corpuscles in the air or sub-ether was only a theory; a theory that could not be proven by any method or means known by science at that time, which resulted in the abandonment of the corpuscular theory.

Magnetism and static electricity were next considered and studied by the great scientists because these forces were able to produce light, heat, and fire under favorable circumstances. When it was discovered that friction could produce fire, heat and light by rubbing,

oxygen was again left out of the experimental analysis, although it was recognized that oxygen must be present to create a flame of fire. In all these theories the contribution of the sun was not conceived to have any particular reaction in the generation of fire in the atmosphere or in the material decomposed. However the heat from the sun, which is the same heat as that produced by fire, was recognized to be the source of heat for the earth. The ball of fire representing the sun radiated the heat through ninety-three million miles of ether to illuminate the whole firmament and heat the earth.

Newton thought that this heat must be represented by an entity which he called "Corpuscles".

Science introduced many theories to substantiate the revocation of the Newton Corpuscular theory. However no substitute for entities was ever successful in reaching a definite conclusion of the nature of fire, flame, heat or light.

While it may be correctly stated that fire *is* the result of combustion, light *is* produced by a flame of fire and heat *is* the end result of burning which reacts with cold to create temperature in the union of cold and heat, there is absolutely no medium recognized by science that can be implemented into the mechanics of either heat or cold. Furthermore, there is no recognized entity or component of the atmosphere that can serve as the vehicle for transmitting temperature. Molecules of air are referred to as capable of transmitting temperature and are regarded as the medium for the exchange, but molecules of air cannot be inducted into the substances, elements, and compounds in the entropy of temperature.

In the final analysis, there is no such instrumentality as a molecule of air. Air is known and defined as a mixture of Oxygen 21%, Nitrogen 78%, and 1% other rare gases. Under these circumstances, a definition of temperature has not and cannot be formulated. A degree of heat on any one of the thermometers is only an arbitrary measurement of temperature with the phenomena of the expansion and contraction of certain elements.

The hundred years following Newton's contribution

to science appeared to be a lapse in the discovery of natural events. During this period of inaction the classical laws were instituted governing Nature's contribution from the knowledge disclosed in the philosophy of the Seventeenth Century scientists. These laws guided the educational institutions for the next two centuries. They were so universally recognized as being inviolable in academic circles that no change could be made that would expose the incompatibility or their deficiency in exposing the causes for the action observed in the reaction of natural events.

Another century passed before the discovery of transmissible electricity. This advance made with electron-magnetic forces marked the beginning of our modern scientific discoveries in electronics. However, the laws that revoked the theory of corpuscles were upheld when electrons were identified as only a charge of electricity without entity, thus circumventing the possibility that an electron could be an entity of the mass of energy exhibited in every action and reaction.

But, when Planck, Maxwell, Hungerford, and many other eminent scientists made discoveries that could only be explained with material entities of mass and matter, a profound study and experimental research disclosed that electrons were entities capable of receiving, conducting, and transmitting electricity as charged electrons.

Planck startled the scientific world with an organization of the sun's forces into the cumulative heat of the sun on the surface of the earth through the medium of entities he called Quantels of energy.

Einstein implied that his $E=mc_2$ was mass in motion at the velocity of light where mass and energy were interconvertible, which leaves mass and energy unidentified unless corpuscles, quantels, electrons, or some entity equals the mass.

Hertz claimed energy was transmitted in the ether or sub-ether by waves or frequencies of some undisclosed entity derived from the charged intensity of the electrical current, simply because the electron entities could not be disclosed by any means that would not discredit the classical laws. Thus, electrons of the electro-magnetic current which are induced to flow in conductors

were thought of as electrical charges or magnetic flux charges because there appeared to be no method or means for detecting them in the atmosphere.

Now, if a review of the past scientific deductions is made, ample evidence is disclosed that implies or expresses that every one of the theories presented predicates a real entity is responsible for the energy expended or contemplated. This conforms with an inviolable law "Material entities must be present to execute a physical force".

The co-ordination of heat, polar energy, magnetism, and temperature with electrons of electricity finds the analogy in radiology, thermal dynamics, integration of of matter, and radionics where the electrons are the fundamental entities of energy with various energy qualifications.

Years of profound study and experimentation had failed to establish the origin or the material entity of the electron which are magnetized in the magnetic fields of the generator or dynamo. Failing to discover the source of the electron has been the hurdle that led to the general acceptance of the electron as a phantom charge of electricity.

Then, ingenious technicians, seeking the reality of electron forces, discovered that the electron exhibited weight, volume, and numerical quantity in the circuit of electricity. This established the unambiguous truth that proved the electron was a material entity, infinitesimal to be sure, but nevertheless a particle of matter with the qualifications of energy that science rejected in the Corpuscular Theory of Newton.

While it was a triumph to discover the material entity of the electron in an electrical current or the electronic systems of the radio, radar, television, and remote control, it still remained for these brilliant technicians to disclose the source and origin of the immense supply of electrons necessary for the huge electrical systems that furnish electrical power.

Apparently this secret of Nature would remain in the archives of science as a phenomenon unless an accidental discovery would reveal this vital knowledge. The know how for generating the electrical current from the atmosphere was well known. But there was

no knowledge that could be applied that would show that electrons came out of the atmosphere. Electrons, that is, free electrons were supposed to exist in the air, those which had escaped from the electrical systems, radio, radar, etc., but these electrons were assumed to be dissipated into space and had lost their energy after they had accomplished their function.

The ether of space is still a factor in mathematical formulas. It is a hand-me-down from the classical laws of the Seventeenth Century. It has never been thoroughly proven or abrogated by the writers of the text books in use in our educational institutions. Thus every student of meteorology is thoroughly inculcated with the philosophy that implies an ether void or a sub-ether containing a few atoms of air, exists in the upper atmosphere of the earth. Very few scientists of the modern technological school believe such a condition exists or that it is possible to exist as a part of the atmosphere. In fact, ether is a word used to describe that which does not exist as mass, matter or energy.

The space between planets is now regarded as a complete void in comparison with a sub-ether or vacuum in the upper atmosphere if the philosophy of the classical laws are upheld.

However, if this space is implemented with mass or matter of the least density of inert electrons, a problem is present in the motion of the earth through a resistant medium.

The proven fact that the earth travels through space at a velocity of 66,660 miles per hour on its orbit around the sun, seems to have been overlooked or disregarded when the atmosphere was arranged and planned by the scientists of the Seventeenth Century.

This velocity of the earth through space is also ignored by the "Space Cadets" of the 'Space Ships" when Space stations and trips to the Moon, Mars, etc., are planned by prominent engineers who should know better. The necessary speed of a ship or rocket that will leave the atmosphere is but a snails pace compared with the velocity of the earth. Unless a means for projecting the "space ship" as fast as the earth travels, it would have to remain in space a year or more to make a landing on the earth on its return trip around the sun.

These facts were known when the early scientists plotted an absolute ether void, a vacuum for the atmosphere and the sun's light illuminated the whole firmament. Something of a non-entity character had to be invented that would have no influence in retarding the velocity of the earth or sweep the atmosphere into space.

Then, three hundred years after the Barometer was invented, to be exact, November, 1944, an experimental development in a small laboratory proved, definitely, that an Electron-Mass existed in the atmosphere of the earth. The peculiarity of this discovery, which will be explained later in this article, is that electron pressure in the atmosphere and on the surface of the earth, registers inversely with the barometric pressure values. It is a coincidence, also, that both instruments were developed by and with the use of a vacuum. It is now conceived that all aneroid instruments operate with the resistance of air to evacuation, although it has always been thought that the pressure of air held the mercury up in the tube of a mercury barometer.

The weight of a vacuum, that is, the differences in the weight during atmospheric disturbances, in a flask of a standard liter capacity was recorded over a period of years, where losses and gains were calibrated to correspond with the barometer.

E.g., when the vacuum gained ten grains in weight, the barometer registered a loss of ten points or one tenth of an inch pressure.

With a loss of ten grains to the vacuum, the barometer gained ten points.

Now ten grains difference in the weight of a vacuum does not appear to have a great influence on atmospheric weight and pressure, but, if the volume of one liter is apportioned with a cubic mile of atmosphere, it shows that the cubic mile would gain over three million tons in weight with the gain of ten grains in the vacuum.

A loss of ten grains to the vacuum would register a loss of over three million tons to the cubic mile of atmosphere.

There is a new approach to atmospheric problems in this fact which presents another means for determining the cause for many disturbing actions that cannot be detected in the barometric values. It is hoped that the

various altimeter readings may be corrected in flight, which have caused so many accidents.

The instrument was given the name of "X-Meter" because it disclosed that unknown condition in the atmosphere which has been a controversial subject for centuries: i. e.: Ether vs. Entity.

However, the weight and pressure of air accepted by science for three hundred years, 14.7 pounds pressure at sea level or 29.92 inches of mercury, cannot be reconciled with the "X-Meter" as a true condition of air weight or air pressure. Nor can air pressure and air weight be regarded as an atmospheric reaction.

The barometer may be reliable for registering changes in the atmosphere, but it does not determine the weight of air when air is known to weigh only 1.2 ounces per cubic foot at sea level.

The weight of air, 1.2 ounces per cubic foot is its specific gravity in the electron-mass of the atmosphere. It is very obvious that there is a paradoxical relativity between air pressure and atmospheric pressures, which has not been adjusted to the facts.

The highest altitude reading made with the barometer was recorded in the balloon ascent of the "Explorer 2" in a flight to 72,395 feet where the barometer registered a reading of 1/25th of the air present at this altitude.

With only 1/25th of the mercury left in the tube, the 24/25ths of unfilled space above the mercury would represent a vacuum or a space filled with ether. Slightly more than an inch of mercury is left in the tube, which would not be enough to create a vacuum..

When it is known that the Electronic Pressure Mass or Plenuum, causes the diminishing air supply at the elevation of 13¾ miles, and that the penetration of electrons into the tube registers the pressure to the exact pressure surrounding the area, then it can be realized that the space above the mercury is an electron vacuous space, filled with electrons.

Furthermore, as the electronic pressure is inversely with barometric pressure it is shown that the space above the mercury is created by the high electronic pressure at that altitude. In other words, the electrons actually force the mercury out of the barometer. So,

if the barometer is read inversely, or upside down, the electronc pressure of the atmosphere at that altitude is reliably estimated.

An air mass of only slightly more than an inch of mercury at 13¾ miles indicates that the limit of air is found at about 15½ miles. There is no doubt but that a few scattered atoms of air will show up in the electronic pressure at a greater altitude, and the electron gradient should increase one atmospheric pressure for every 15½ miles of height. This is the entity that compensates the loss of air for a plane in flight at these altitudes.

Now if this electron gradient runs true to form, the electronic pressure would accumulate a pressure of about thirty-three (33) atmospheres at the outer shell of the plenuum; by Plenuum it is meant the Electronic Pressure Mass of the atmosphere. In this manner it is conceived that the atmospheric and all the incidental things on the earth are protected from flying off into space when the earth passes through space at 18½ miles per second.

Where do the electrons originate?

Do electrons represent energy?

Do they energize the earth's motion or does the earth energize them?

Storm fronts, heavy precipitation, cyclonic and cold fronts are always preceded with a low barometric pressure, but it is known that there is no explanation offered that will disclose why a low pressure front advances into a high to bring the storms into the high area. Now, if it is shown that a high electron mass pressure is always present when the barometric pressure is low, it can readily be understood *why* storms go places.

The weight of air, 1.2 ounces per cubic foot rejects any theory or claim that air, only, exerts a pressure of 14.7 pounds per square inch.

Consequently we must regard the weight of air as its specific gravity in an electron mass, which may at times weigh more or less with atmospheric changes.

Plank's hv thermal energy from the sun of 6.5×10^{27} erg sec. represents only the heat factor that enters the atmosphere from the insolation of the sun. These Quantel-ergs of energy equal a force of 200 trillion

horse power of thermal energy for each twenty-four hour day.

This thermal energy represents a heat factor in the atmosphere that must be subdued by cold each day to maintain a norm for the temperature of the zones of the earth.

Much stress is made on the subject of heat energy. But, cold is a subject that requires a new approach if the action of cold in temperature is to be accorded a physical force. We cannot continue to regard heat, cold, or the entropy of temperature as an ethereal condition that defies analysis, definition and identification.

While it is positively known that the sun supplies the heat for the earth, there is a vague and undisclosed induction of cold which must react with this heat to reduce the temperature to a norm.

The law accepted by science that "Cold is the absence of heat" is an admission that the source, the nature and the entity of cold for the earth is a problem that science cannot cope with, when the classical laws are applied to the analysis.

The Electronic Plenuum can and does function as the component of the atmosphere that is responsible for temperature. The electrons of the incoming energy of the sun, and the induction of low E. Volt energy electrons from space which degrade the sun energy in the polarity exchange of heat and cold, can be accepted as the inexhaustible source of supply of electrons that form the Plenuum. Thus the polarity of electrons, divided into their active and inactive state, their positive and negative mutually attractive and repulsive force, their expansion and contraction action, and their E. volt energy forces, are governed by the fundamental law "Like poles repel, unlike poles attract."

Thus the ultra-positive radioactive ions or "Radions", repelled from the sun in the beam of sun energy, with energies of 30 billion E. Volts, enter the Plenuum at an angle of incidence to propel the earth on its axis and on its orbit around the sun. The physical force that causes the motions of the earth *CAN* be determined, measured and plotted.

The negative electrons from space, with extremely low E. Volt energy, are inducted into the atmosphere

by the velocity of the earth through this electronic space, unite, and degrade the energy of the sun to living conditions on the surface of the earth.

Now, electrons in motion become ionized. They become magnetized when in motion through magnetic fields. As all electrons are in motion in the Plenuum, the energy of the electrons may be classified in three general catagories; Ionized, Magnetized, and Radioactive.

Electrons also expand with heat and contract with cold, in fact it is this expansion and contraction of electrons in temperature that formulates the phenomenon of the expansion of matter by heat and the contraction with cold. Therefore the temperature-polarity stage marks the attractive and repulsive action of temperature as a function of polar energy. Then, there is the adaptation of electrons to the integration of the elements, substances, and compounds, which has been battered from pillar to post by the classical laws.

It is common knowledge that the energy from the sun must be degraded before this invisible energy reaches the earth. Furthermore, logic tells us that the entity of heat must meet the entity of cold to merge both into a mean.

When a vacuous space or sub-ether in the atmosphere, and, a void in interplanetary space is recognized by science and the fraternities, then the formulas of $E=mc_2$ of Einstein, the hv of Plank's, the waves of Hertz, and the corpuscles of Newton must be relegated to the limbo of lost causes and effects, simply because no entity could be evaluated with our accepted systems of measurement. However, nearly all of the incoming energies have been measured in the analysis of rays. Spectroscopic values have been assigned to each ray, by the frequencies of some undisclosed entity of which the rays are composed. A ray must have entities of a material existence before it can be measured, whether the unit of measurement is Angstrom, ether waves, electron frequency, electron volt or erg.

The measurement of rays was made after the energy was degraded in the atmosphere, using as it appears, the instruments associated with vacuums, magnetic force, heat and electricity. Rays under such circumstances

cannot have the value of those undegraded direct rays from their source.

The only means for measuring rays or beams of energy before they become degraded in the atmosphere is resolved by and with the velocity of light in space. Light energy travels at the velocity of 186,330 miles per second. The electrons of the rays that constitute the beam of energy, traveling through one centimeter in space generates one electron volt in the motion.

As there are approximately 30 billion centimeters in a one second flow of light or sun energy, the E. volt of an electron of this energy is calculated to be 30 billion E. volts, which is the highest energy value of the radioactive electron. Also, the 30 billion E. volts is the electron energy that must be degenerated or degraded by the negative electrons incoming from space to modify the suns energy for living conditions on the earth.

It requires 8¼ minutes for the energy beam of the sun to reach the earth, in the meantime the earth travels 9250 miles on its orbit. Thus the beam of sun energy describes a curved transit in reaching the outer limits of the atmosphere.

Perhaps the most important knowledge gained from the adaptation of an electronic plenuum is, that there is a material entity which represents the transmissible energy in magnetism, polarity, temperature, electricity, atomic energy, and many undisclosed phenomena of action and reaction which have not been implemented with the fundamental causal action or the source of the physical force that causes the reaction.

For example: It is known that electricity is electronic, but the origin and the source of the electrons is not revealed.

There is no known component of the atmosphere capable of executing the observed effects of temperature.

Magnetism is a physical force generated in the atmosphere which has no material entity to identify this force.

The physical force that rotates the earth is undisclosed.

Polarity obeys the law: *Like poles repel, unlike poles attract.* How can polar energy be introduced into na-

tural events if there is no entity to function as the positive and negative poles?

Gravity is an observed action which has never been identified, disclosed or associated with a physical force or a material entity.

All magnetic forces have been recognized as being of dual attractive and repulsive forces. Whether the electrons from this dual polarity are from the circumstance that the positive and the negative electrons form a pair, or whether an electron can have a dual polarity as claimed for the newly discovered Meson of the electric-static lines of force flowing into the surface of the earth, it means that the earth does not throw out magnetic lines of force in the cause of gravity. Nevertheless, magnetic lines of force are recognized as horizontal lines of force circumscribing the earth in channels capable of transmitting the signals of radiology. The compass outlines the magnetic lines in longitudinal lines of force in the plenuum in the N. and S. poles.

The electronic lines of both the magnetic and electrostatic are utilized in radio, radar, television and remote control for the conductivity in channels and across channels. The conductivity of electron lines in a mass pressure of the Plenuum which are susceptible to the frequencies of the transmitting signals can be adapted to radiology in much the same manner as the electronic current in telephone lines. It is obvious that the microwave is entirely dependent on the electron-mass of the Plenuum for the transmission.

If the earth's composite attracts these lines of force, then the electrons of this force must be of a dual polarity to accomodate the positive and negative polarity of mass and matter.

To reiterate: *"All magnetic forces are recognized as being of a duality of attractive and repulsive action.* Whether the electrons of this dual polarity are from the circumstance that the positive and negative electrons form a pair, or if the force is in the recently discovered Meson, which is inherently dual in polarity, it is apparent that the lines of force must be of a dual polarity to accomodate the magnetic forces they meet in the Plenuum of the atmosphere. The needle of the compass has an N. pole and a S. pole and all mag-

netic bars have the same division of the magnetic force which is influenced by the magnetic lines of force existing in the atmosphere."

While the air of the atmosphere in the lower boundary is a very important and essential gaseous component for the sustenance of life, growth and energy for the organic, and to some extent, the inorganic matter of the earth, there is only a small portion of the atmosphere containing air.

One-half of the air in the atmosphere is found below the altitude of 3½ miles, yet the atmosphere is estimated to extend about 500 miles. In the balloon ascension of the Explorer No. 2 to an altitude of 13¾ miles (72,395 feet) 24/25th of the air was below the balloon. Now if the true gradient is calculated, air reaches to an altitude of only 15.5 miles. Of course there would be a few scattered atoms of air floating around in the Plenuum above this height. But, at this point in altitude the pressure of the Plenuum would take over entirely if the inverse rate with the barometer holds good; where electronic pressure gains in a true gradient, and the extent of the atmosphere is 500 miles, the pressure on and at the outer shell of the plenuum should accumulate a resistance to sun energy, and to space of about 33 atmospheres of pressure.

In this manner the earth's surface is protected.

There are other factors that may effect this plan to some extent which are assumed to exist. The Tropopause, the Ozonepause, the Ionosphere, the Heaviside layer and the space above of about 400 miles which are concomitant with atmosphere problems.

However, it is abundantly evident that some such plan must be recognized to meet the demand of many recent discoveries and developments that cannot function without an entity of mass and energy is substituted for the ether complexity.

Gravity must be assigned a material entity before it can execute the physical force observed in its action.

GRAVITY, INERTIA AND FLIGHT

Gravity is known as the physical force that attracts all bodies toward the center of the earth. Gravitation between the celestial bodies, which is assumed to attract them to each other, is then an opposite force of gravity. The distinction between gravity and gravitation is apparent although there is a tendency to interpret the two forces as one. Gravity is that mysterious force measurable by the force it exhibits, yet it is completely ethereal in its function. No inquiry into the physical force of gravity has shown that it is related to anything but the masses of bodies within the earth's environment. It appears to have no relation to physical or chemical conditions of the activated bodies, nor has it been explained as energy with an entity that could enforce the laws of gravity, or the observed action. The medium in which gravity expends its force is likewise ethereal and non-existent.

The earth's magnetism is accepted as the force of gravity and is estimated to extend 10,000 miles beyond its surface into space. Logarithmic formulas are used to prove the extent of the force. Where in space is the line of demarkation between gravity and gravitation? It is not known, or ever mentioned.

The force of gravity acts like a magnet. The analogy is so truly representative that we are taught to think of the earth as a great magnet attracting all material matter to the exact center of its core, disregarding the composition, the magnetic neutrality, or the ability to pass magnetism freely through their structure. The independence of gravity of any quality but the attraction for matter has barred the way to any explanation of its nature or its source.

Gravity surely must be implemented with a material entity before it can execute a physical force. Another link in the dispensation of energy is missing.

Everything that is measurable is material; every-

thing that is material is measurable. Yet, we measure the force, the velocity, and the resistance to gravity without even associating it with a material existence. Gravity and gravitation are phenomena of etherealism, i. e., etherealism is the abstract postulations of mathematical formulas where space, time, width, depth, curves, lines, etc. are infinite probabilities.

Newton fathered the laws relating to gravity and gravitation. He made no attempt to explain the phenomenon of gravity by analyzing the structure of the elements or of matter; however, Newton evidently believed that every particle of matter exerts a drawing force for every other particle of matter, but, he did not make clear what this drawing force is, or why it is inherent in all matter. Newton was content in merely dealing with the phenomenon of gravity in the abstract.

Now we cannot regard the force of gravity as an abstract magnetic force or the earth as a great magnet when it is known that all matter endowed with the energy of matter is attracted to the earth. While it may be revealed eventually that the energy of matter is a magnetic or ionized force between the electrons of energy within and of matter, and the gravity electronic line of force, gravity cannot be shown to be magnetic attraction, electrical attraction or electro-magnetic attraction without having at the same time the repulsion of like poles in these forces.

When the study of free electrons has sufficiently advanced, it may be shown that these ionized primary products of space in motion provide the essential attractive influence for the magnetic effect between the energy of, and for the integration of matter with the energy of accelerated electrons. Thus, the abstract postulations surrounding the force of gravity are provided with a material entity in the curvature of space with four dimensions, which defines the fourth estate of matter, where energy equals the space, time, motion, and structure of the mass, and is responsible for the physical existence of matter.

The electron-mass in motion generated polarity, and polarity institutes attraction, thus the acceleration of mass in an ionized electronic space generates and becomes the genetic inductor and conductor of energy,

which, when transposed into accelerated force gives us gravity electronic force, electricity, magnetism, and the fourth estate of matter, all of which are electronic forces. In other words, the attraction of opposite polarity of electrons in motion for the electrons of energy in matter institutes an ionized attractive force that accounts for the weight of a body as proportional to the electronic energy of its mass.

All bodies build up their energy in the motion of the mass, for all matter in the universe is in motion. Newton's law, where inertia is defined as a body at rest, cannot be applied to any mass in the universe because a body at rest without the energy of motion of the mass to retain its mass form would disintegrate into its least units in a void. Nor can the interpretation of inertia in motion be reconciled with the experience in ballistics where the smallest change in weight of a rotating body from the center core of inertia or axis, will change the line of flight and is entirely independent of exterior forces.

When Newton theorized that a force was necessary to deflect a body in motion, it is evident he presumed that the force of gravitation *pulled* the earth and all other bodies off their true line of flight. Then, on the earth, the force of gravity pulled the body or object to the magnetic earth. Thus, inertia in motion curved by the force of gravity or gravitation. Newton had never played golf with a lopsided golf ball. He had never played baseball with a curve pitcher, or croquet where the balls were chipped to an irregular shape, or played "African golf" with loaded dice.

Any unbalanced body will change its line of flight or inertia from within; that is, whether rotating or floating, the body will be governed by the center of inertia to prescribe a line of flight in relation with its axis of inertia, which is built up within by the attractive energy in the structure of the mass.

Now, if we conceive these lines of force or inertias, as set up in the invisible electronic pressure and as a reality of mass, space, time, and motion, in the geodesic of connecting points; the all-prevading geometric lines of gravity, which originate in the motion of these electrons surrounding the mass (earth) by reason of the

proximity of the electrons and the earth, may be organized into a line of force with inertia that consummates and identifies the force of gravity with a material and physical entity. Thus, empty space would be no longer empty, and the ether complex is merely dissipated into a state of mind. Gravity would be no longer an ethereal hallucination, but an electronic line of force, an entity with inertia, which is according to the accepted laws: *An electron in motion creates a magnetic line of force. There must be a material entity to execute a physical force.*

Science has always recognized gravity as a physical force, with inertia, with attraction, and with energy. But the material entity of gravity is only associated with the force it exhibits, which has been determined by the weight of a body down to the infinitesimal degree of weight of the lesser body for the attraction of the greater body. There has been no consideration for the space between the bodies, which is in reality the electronic attraction of the electrons in motion for the electronic energy of the mass in motion, which is accumulative in the electron energy of the greater mass. Thus, the attractive formula is resolved in the electronic energy of the masses where the inertia of a body is proportional to the motion of the electronic energy of its mass.

Einstein has presented a mathematical formula that precisely fits the above premise, although Einstein in his thesis on Electricity and Gravitation, refrained from introducing the material aspect into the calculus.

It may be seen that these elementary particles of electricity, of magnetism and of gravity, which are the electrons of energy when in motion and free from the fixed mass of atomic attraction, play an important role in the gravitational phenomena. It is natural for matter to possess energy; it is natural for it to be in motion and unnatural for it to be at rest; therefore, every particle of matter in the universe, from the infiinitesimal electron to the sun, is moving so far as we can determine with modern observations. Nothing has yet been discovered to be at rest.

The various energy qualifications of electrons intimately associated with matter in the mass-time-space-motion formula, presents further inhibitions in forming

definite conclusions by the abstract nature of the terms used to describe energy, where energy is a physical force. There are rays, oscillations, waves, frequencies, volts, Angstrom units, ergs, beams, etc., that represent energy or its measurement which must be a physical entity before it can be described or defined. What is the material composition of a ray? Where do they originate and what unit of energy do they represent? What is a light beam? Radio beam? Sun rays? Moon beams? What is the unit that causes the frequency, the waves, the voltage, the ergs of energy that accompany these emanations from and through space, the atmosphere and the electron pressure of space?

The measurements of the Cosmic Rays with mechanical devices developed for detecting the energy of electrons in motion (E-Volts) which, when applied to bands, particles or nebulae, presents the nearest approach to the reality of energy coming into the earth's environment. But the source, the origin and the nature of this energy of rays, or the substance of the rays, if a ray can be involved with structure, still leaves the Cosmic Rays in the category of phenomena. It has not been shown or proven that the rays are the electronic attractive force or whether the particles are set in motion by the attractive force of gravity.

The electron-volt employed in cosmic ray physics is, by common consent and extrapolation, defined as the energy acquired by an electron in its passing between two points in space differing in potential by one volt. The extreme minuteness of this kinetic energy is not easy to apprehend. It means that the magnetic field of an electron in motion through a mass of electrons under a definite pressure in space generates a force of one E-volt by its motion through one centimeter of space, and by the same token, the electron or the multi-trillions of electrons constantly coming into the electronic space set up a magnetic field in the atmosphere surrounding the earth.

The very fact that an electron in motion generates magnetic attraction for and by the electrons it is passing through in space, in the atmosphere and in matter, shows that the electron must transmit the energy of its motion to the ionized electrons in the media through

which it is passing. This is commonly called absorption of the atmosphere or of the matter through which the rays pass. The attraction and repulsion of electrons in motion for the electrons of opposite polarity in the magnetic fields is one of the basic laws of magnetism that is completely disregarded in the theoretical distribution of the energy of matter.

There *must* be a material entity to execute a physical force. It has been proven that the cosmic rays are a physical force; therefore, they must be defined by and with the least unit of physical energy known to science, the electron. The energy developed by the impact or motion of these electrons in mass, in particles and in bands or bursts has been disclosed. Still, the source of the energy or the force that inducts the electrons of the rays is a mystery. Are cosmic rays attracted to the earth by the magnetic forces of the earth? Or do they create and are created by the repulsive force of mass-time-space-motion of electrons set in motion by the masses? Electrons in an inertial space when set in motion would, without doubt, be the medium that could be identified as energy by the measurement of the vibrations and oscillation frequencies in the interferences this energy meets in the electronic pressure components of the atmosphere. Thus, all incoming *Cosmic Rays* are more or less based on the observation of effects with cleverly designed instruments that record the effects without definite identification of the causes for these dispensations. Their origin, their intrinsic composition, or their final dissolution, in which the vague term energy is used for the accelerating force that propagates the rays through matter without a definitely outlined source of energy, what constitutes energy, or why energy should attract, repel, impel or induct the rays into the earth's environment, places the incoming Cosmic Rays in the same abstract category with gravity, electricity, and magnetism.

If one observes the maze of terms invented to identify the various incoming Cosmic Rays and other phenomena derived from observation of the effects, and the mathematical abstractions of etherealism, one is confronted with the following terms which must be correlated with the energy for their propagation, their in-

duction, and their dissolution. The electron plays but a minor part in these exponentials, yet, along with electrons there are protons, positrons, photons, negatrons, neutrons, mesotrons, etherions, mesons, deuterons of the family of electrons. All, or nearly all, of these units of energy are found in the rays: i. e., the alpha, beta, gamma; violet rays; cosmic rays; bursts, bands, and scattered particles. Also, in disintegrated atoms; quantels and quantuum; continuum, ether, plenum, nuclei, nebulae, meteors and meorites. They produce oscillations, waves, frequencies, channels, spheres, pauses, etc., etc., etc., all of which are the energy agents for representing radiant energy, electronc energy, atomic energy, and cosmic energy besides the energy of motion, by motion and of motion, stresses, and latent forces.

Out of this olio of imponderables must come the energy for electricity, magnetism and gravity, the electronic triumvirate of primordial energy.

To the nuclear physicist these items may be perfectly clear, but he has been unable to disclose the intrinsic causal entity of electricity, of magnetism or gravity. He may associate these units of energy with the annihilation of the atom of matter, although he must call on electricity or magnetism or gravity forces, the fundamentals of which he knows the least about, to represent the energy of cosmic radiations, of matter and of the atom he has theoretically dissected.

In the millions of words written about incoming cosmic rays, their measurement in cloud chambers, electroscopes, counters and various instruments, no reference is found that infers or assumes that the rays are associated with the energy of gravity, or that they institute an attractive force for the particles or bodies coming into the atmosphere.

It is evident that these particles are either energized by the cosmic rays, or the cosmic rays are constituted of these various bodies coming in from space. The very fact that the cosmic rays induct the electrons in variable energies, regardless of their polarity (positive, negative or neutral), lends substance to the predication; That the incoming Cosmic Rays are of the highest force of kinetic attraction capable of collecting and inducting electrons and particles of high electron-volt energy

into the earth's atmosphere and through matter. This premise identifies a portion of cosmic rays with gravity. If a study of cosmic rays is made with an angle of approach that does not involve the complete submergence of reason by the theoretical assumption, postulations, and reifications, it may be discovered that the rays are an electronic force instituted by the motion of the mass of the earth through an electronic static space.

The attractive and repulsive quanta of cosmic rays are characteristic of a gravity electronic line of force. They are known to be a constant force particularly adapted to the force of gravity. They cannot be assumed by inductive logic to be the ionized, magnetized or radio-active electrons attached to atomic structure as the energy of matter previously outlined in the foregoing thesis. The electrons in the atmosphere are pressurized and ionized by the motion of the mass of the earth through an electronic space and energized by the insolation of the radiant energy from the sun.

It should be possible to disclose the appropriate 33% of the mass of electrons for the universal attractive force from the myriad of definite electronic forces known to be bombarding the earth and the atmosphere from space, the majority of which have not been organized into qualitative or quantitative causes, forces or effects. From this electronic dispensation of nature, intimately associated with the generic term energy, it should be possible to choose the exact free electronic force that fills the requirement for a gravity electronic line of force with mesons of dual polarity. But, in view of the fact that these particles of energy have not been arranged into a continuity of causes and effects, the identification and sclection of these electronic forces must run the gantlet of chance.

The fly in the ointment of the concoction of terms, phrases, and premises is the abstract term energy, which is invariably used in the absence of a known physical force. Motion is energy. Some material thing must be moved before energy is developed, so we have mass times motion, times velocity, times the unknown quantity X, equals energy. This unknown quantity X is space in which time is carried to the fourth geometric dimension with width and depth. The motion of mass

through space by energy at a definite velocity represents the mathematical abstraction where energy is the imagined force (immaterial) that energizes the universe.

All of the phenomena of the world associated with the contiunity of natural events depend on the true definition of energy for a solution. We must know how energy is generated; we must know from what physical portion of matter it is derived; we must learn why the motion of mass generates energy; we should know when this reaction to motion takes place and where the transformation is completed. With these interrogations, how, why, what, where and when applied in a logical and realistic manner; with the knowledge of great masses traveling through space; with the known measurement of their velocity; with the assurance that space cannot possibly be a void without disintegrating the masses of matter; and with the discovered knowledge that a vacuum is an electronic pressure which responds to the linear force of gravity, there is ample evidence that these electrons occupy the vacuous space with potential energy qualifications, in a semi-static and inactive state due to the negative cold environment.

Knowing that all matter is in motion and that energy enforces this motion, which creates by the motion more energy, it is reasonable to assume that the larger masses, like the earth, generate their own energy by the excitation of electrons in this space which are transposed into energy by the motion of the mass.

It may also be assumed that there is a great energy potential stored in space in much the same manner of the storage of electrons of energy for gravity, electricity, magnetism, radioactivity, light, heat, cold, etc., in the energy components of the earthly elements and in matter. Thus in space and in the sun's electronic insolation are found the fundamental potentials of all energy for the fourth estate of matter. As every mass in motion is surrounded by curvature lines of force caused by the rotation of mass which molds the body into globular form, each globular mass generates its own special curvilinear lines (four-dimensional), the degree of which depends on the velocity of the mass through an electron-space resistance. These special curvature lines

of force, warped into a continuity of definite regional curves by the rotation of the mass on its axis, causes the acceleration of all minor particles and bodies toward the center of inertia of the axis of the field of motion. This distortion and excitation of the electrons of space increases in proportion to the mass velocity and rotation of the mass causing it, which ultimately decreases with the distance from the body. After the passing of the mass, the electrons of space settle into their former static state of inertia or stability.

Naturally these curvilinear lines of force are electrons set in motion. And, in accordance with the authenticated law: *An electron in motion creates a magnetic field in its path,* there is a magnetic field produced in the area that is responsive to the rotatable motion of the mass. This region is termed the *Plenuum* and extends to the limit of the magnetic fleld that moves with the earth. By reason of the velocity of the earth through a static electronic space, the plenuum, by and with its rotation with the earth on its axis, accumulates a pressure equal to the resistance of electronic space.

This pressure is electronic. It can be measured by weight. It is being weighed in a vacuum. The differential has been previously explained, the method for computing the pressures is a proven fact, and gravity is shown to be equally effective in attracting electrons as it is in attracting matter. So we may conclude that electrons of positive and negative polarity are part and parcel of the matter as the energy of matter, or as the fourth estate of matter.

The pressurized electrons in the plenuum would naturally be of a negative polarity depending in the positive insolation of the electrons of sun energy for modiflcation of this polarity, which are inducted into the field by the attraction and the electronic energy insolation of radioactive energy. Thus all matter and energy is governed in polarity by the temperature. This is called the tempolar-index, which establishes the state of the polarization.

It is customary for explanation to apply an imaginary reference frame, using the geometric lines perpendicular to the axis from which the given point lines of force extend, called coordinates. The axis of such a

frame around a moving and rotating body must necessarily accomodate the direction of its coordinate lines of force because all bodies are in motion.

Now, if we draw an imaginary reference frame around the earth, which is moving through the electronic space at a velocity of 18½ miles per second, with the understanding belief that the earth *is* a great magnet, and visualize the earth as throwing out from its center core strong lines of attractice magnetic force that draw bodies to its core of inertia, it may be conceived that the earth is a great magnet. But, these lines of attractive force must have substance and the earth is rotating on an imaginary axis which would inevitably cause the lines of force to be curvilinear in accord with the motion of the earth. A stationary magnet would show these lines as curvatures. A rotating magnet would develop a segregation of the lines into definite positive and negative lines of force with a curvilinear approach to the center of the core of inertia. There is absolutely no analogy presented in the stationary magnet, the likeness is in the rotating magnet.

Although the earth may exhibit the characteristics of a great globular magnet, it is evident that the earth generates these lines of attractive force by its motion. The magnetic effect is cummulative in the matter of the earth as electronic energy by reason of the attraction of these lines of force for the energy of matter. Naturally, with the most matter in the earth's composite, the lines of force are directed to the center of the core of inertia or axis of the earth and plenuum.

Further proof may be cited to show that these lines of force do not extrude from the earth, but flow toward the center of inertia.

E. g.— Let us assume that the earth is a great magnet attracting all bodies, the atmosphere and particles toward the center of the earth. We impose a frame with coordinate lines extending from the center along the longtitudes. Each line represents a line of force 500 miles or more in height to the limits of the atmosphere. Each degree of longtitude is represented and circumscribes the earth to this height. All lines meet at the poles. These magnetic lines are pulling the atmosphere along with the earth's rotation. The velocity of the sur-

face of the earth at the equator is 1,000 miles per hour, the velocity at the poles is nil. Gravity is a constant and equal force for practically all the surface of the earth. What would happen if gravity *pulled* the atmosphere along with the surface of the earth?

The extreme velocity for any body falling toward the earth through the atmosphere is estimated to be about 400 miles per hour, or over 580 feet per second. With the surface of the earth at the equator traveling faster than the object is drawn to the earth, every body, even the atmosphere, would travel at an angle of incidence proportional to the difference of these velocities. At the equator the atmosphere would be dragged along in an easterly direction at about 650 miles per hour. At the poles there would be a vortex rotating with the axis of the earth. There would be a continuous tropical hurricane at the equator with the air approaching from the east at 350 miles per hour. It would be absolutely impossible for a westerly wind to develop.

This is only one movement of the earth. The earth is traveling around the sun on its orbit at a velocity of 66,600 miles per hour. This is one of the authenticated facts hardly ever mentioned, especially when gravity is the subject under consideration. No one appears to be able to coordinate the lines of force of a magnet with the rotation of the earth. The old adage *Nature abhors a void* is entirely disregarded. This is the forbidden index in scientific rationalism. It marks the point where etherealism enters the hierarchy of mathematical abstractions and the A.B.C. of differential calculus results in the unknown qualification of X.Y.Z. Where X is energy, Y is attraction and Z is polarity. Space is another unknown phenomenon that has been shifted from pillar to post to accomodate the theoretical illusion that light, gravity, energy, cosmic rays, and other forces can be propagated in a void: It is doubtful that matter of any form could exist in a void. There can be no such existing state in nature as a permanent void. Science knows there can be no void in space. Physicists ignore the implication and invest the ether space with tenuous matter usually referred to as a continuum, quantum, quantels, ether or other fancies. Nevertheless, when space is invested with matter, however tenu-

ous, a problem is involved in the velocity of the earth traveling 66,600 miles per hour through this material space, which is usually ignored.

How could anything be retained on the surface of the earth? How could the atmosphere and the water, the gases, vegetation or any matter become permanently fixed? Even electrons with a velocity of cosmic rays and light (186,000 miles per second) would develop enormous force and inertia in their motion. There can be no void, there can be no collected matter, there can be only a vacuous space pressurized by electrons of infinitesimal dimension, fluid in motion, static in polarity, and inertly stable, which are activated into motion by the velocity of the earth to generate magnetic lines of force in their path.

The earth passing through a comparatively static electronic space would produce a pressure force with the greater motion following the nose of inertia which becomes the axis of inertia through the moving body. Naturally this would institute a higher velocity for the electrons on the side toward the direction of the rotation, that is, 67,600 miles per hour, while on the opposite side rotating toward the resistance the velocity of the electrons would be one thousand miles per hour less than the speed of the earth on its orbit, or 65,600 miles per hour. The lines of flow passing over the poles would maintain the velocity of the earth of 66,600 miles per hour. It can be assumed that the plenuum absorbs these velocities by its greater diametrical dimension with all of these lines of force converging in the slipstream that would trail the earth for thousands of miles. This back-wash of electrons, expanded and magnetized by the friction and motion of the mass, shaped into a tear-drop form and expanded on the higher velocity side of the earth by the insolation of the sun, may be organized with the sun energy force that rotates and propels the earth on its orbit around the sun.

Then, too, the axis of inertia is constantly changing its direction in relation to the angle of incidence of the sun's insolation. This change is a coordinate with the 23½ degrees of latitude or 47 degrees in its variation with the change of seasons. Both the pressure lines of attack and the nose of the axis of inertia are affected

by this variable convergence to the extent that causes the earth to travel in an ecliptic orbit which may be described as an irregular ellipse. In other words, nature is putting on the *English* for a great out-curve on the ball.

The foregoing analysis is resolved if we implement space, time, breadth, width, and depth of the void of etherealism with a material entity, i. e., Electrons with resistance in space; the volume of the mass with inertia force; the expansion of electrons for the acceleration of the mass; velocity for the time of reaction. We have electrons, times velocity, times mass, times the rotatable motion, as the known quotients, to equal the action and reaction of the energy that rotates the earth.

In other words, electrons set in motion by the velocity of the mass, generate the energy that circumscribes the mass (earth) with an orderly and constant cosmic energy of gravity curvilinear force.

Thus gravity may be defined as a curvilinear electronic line of centripetal force constantly bearing toward the core of inertia in the axis of the plenuum. The weight of a body is proportional to the attraction of the electronic energy of its mass for the electronic line of centripetal force.

This brief summation of gravity may be, and no doubt will be amplified with millions of words, graphs, frames, and geometric points, lines, and planes to prove or disprove the relativity of the curvature lines of force surrounding the earth. The premise may be reconstructed by differential calculus to the nth degree; it may be extended to the least and the greatest of the celestial bodies in space; but when the material aspect is formulated and interposed into the ethereal, the last and final analysis reduced to the evident truth, will show that *Gravity is an electronic line of force.*

Furthermore, the premise revives and validates Newton's three laws of motion by identifying the energy that creates motion, velocity, inertia, action and reaction, which, with the introduction of these material forces into etherealism, implements the abstract mathematical symbolistic formulas with physical forces.

Apparently it has not been necessary that we should know of these newly discovered factors in mechanics,

in scientific theories, or in mathematical calculus as long as we kept our feet on the ground. The force of gravity was known, the weight of the atmosphere, the specific gravity of air, and the resistance of a moving body to the atmosphere had been calculated to the most minute detail. Electricity, steam, gas, and fuels were adapted to our needs for motion, transportation and communication. Then about the turn of the century a new development in transportation came into being with the invention of the airplane.

Heretofore, every scientist, every engineer, aerodynamist, physicist and mechanic, in fact every person entering the primary schools of education, was taught that the earth was a great globular magnet throwing out lines of magnetic force to attract everything of material composition to the center of the earth.

This logic became a concept imposed on the subconscious mind, to be taken for granted as a matter that could not be changed or modified. It must not be compromised. It should not be violated. It was one of the inviolable laws of nature to be accepted in its entirety as a matter of course, and applicable to all of the mechanics of motion.

The undeniable fact that meteorology has had a very difficult time in adjusting its observations to the existing laws of gravity; that aerodynamists cannot correlate the performance of an airplane, a balloon, airships, jet plane, or rocket plane with the reaction of gravity; that the atmosphere is filled with a non-entity ether which is supposed to exist in the absence of air; and the further knowledge that a magnetic force extending from the earth would invalidate the observed and recorded motions of the gases of the atmosphere, are only a few of the contradictory condition that have not deterred the greatest intellectuals from clinging to this academic law of gravity.

If science will condescend to the level of the foregoing analysis of gravity, it may be further shown that the discovery of an electronic dispension of nature is the missing link that is needed to weld circumstantial evidence with observational data (a maze of ambiguous eventualities) into a chain of coordinated events.

The few concessions that science must yield are: That

the energy of matter for its integration is an electronic energy force: That matter endowed with this electronic energy is attracted to the earth in proportion to its fourth estate of matter; That gravity endows all matter, falling toward the earth with inertia: That gravity is an electronic line of force. Thus, the atoms of air, the molecules of the particles of dust, the electron of electronic pressure and the Gravity Electronic* line of force all have inertia (The trend to flow in a straight line toward the core of inertia in the earth).

Gravity has always been considered the force an airplane had to overcome before it could rise into the air in a successful flight. It was never thought that gravity actually helped in flying a plane. It was not conceived that gravity lends an important factor to the lift of a plane or that, without gravity, there would be no reaction to the thousands of horse power wrapped up in the airplane engine. In aerodynamics, gravity is the force that prevents an airplane flying.

Mathematicians, fifty years ago, who were as well equipped with the knowledge of air as those of today, and who were as able to calculate the problems of air, predicted and insisted that it was absolutely impossible for an engine to carry the load of the plane much greater than the air it displaced. There just was not enough weight to air (.076 lbs. per cubic foot) to support the plane or enough resistance to air to pull a plane with a wingspread of an area that would support the plane in a tenuous air. But they were wrong, as can now be attested by the tons of plane, the tons of load and the thousands of horsepower reacting against an air resistance that has not and cannot be correlated with the performance of the plane. The older mathematicians were right and they were also wrong. Engineers, aerodynamists, and physicists have conceded that in the study of known forces to which an airplane is subject to in flight, mathematics are of but little help. The dynamics of air are recognized as so complex, the known factors of resistance have been so little understood, that to formulate a complete theory of the action to the reaction, recourse must be had by experimentation.

So, engineers designed and built planes, observed

* NOTE: Gravity Electronic lines of force will be denoted hereafter in this book by the letters G. E.

their performance, measured their contact area, calculated the camber and the curved wing, built air tunnels for testing models, then turned the problem over to the physicists to search for a law that might explain why the plane flew. Any old law if it was ancient would do. The physicists came up with Bernouilli's law, which stated, "The pressure of a gas is reduced when the speed is increased." This called for a curved wing cambered to direct a larger portion of the air over the wing to produce the negative pressure by the longer chord of travel and a greater velocity. The extra speed of the air over the upper surface of the airfoil was supposed to account for the 70% lifting-force that could not be mathematically proved in effect on the angle of attack of the lower wing surface when in level flight. Of course, the angle of attack is increased when a plane leaves the ground, which increases the lifting power of the curved wing by the drag set up in the inclined wing.

The theory that the 70% lift is in the lift of the upper surface can only be regarded as an unproven claim, yet it is being taught in all of the curriculums of aerodynamics.

Every student pilot is so instructed. Engineers, aerodynamists, physicists and science in general, for want of a more logical and better solution for the performance of a plane, vigorously insist that Bernouilli's Theorem applies to two-thirds of the lift of an airfoil.

This law was so universally accepted that curiosity impelled a further critical inspection of the law or theorem, in its application to an airfoil. The first question was: How much faster does the air travel over the top of the wing surface? A careful measurement of the wings on several planes of different model and construction showed that the distance over the cambered curve compared to the chord on the lower surface was an average of 2% greater. This 2% increase in wing surface is supposed to account for about 70% of the lift and carrying power of the plane when in level flight. One can now realize the desperation in aerodynamic circles for providing a cause for an effect, when a 2% speed-up of air is accepted as sufficient to cause nearly 70% of the lift of a plane.

Now Bernouilli's law is not to be blamed for this dis-

crepency. This theorem, although based on observation and not supported with a cause or why for its action, has stood the test of time in the mechanical movement of gases. The same overlooked factor, the gravity quotient, is missing in the theorem. Gas is matter. Any matter, whether it be gas, liquid, solid or energy, will lose weight when its velocity in motion is increased. Matter will lose more weight when projected across the G. E. lines of force than when directed with them. A gas loses weight in motion when it creates a negative inertia pressure in its volumetric body. A stationary body weighs more than when it is traversing the G. E. lines of force.

Mathematicians have calculated that air, weighing .076 lbs. per cubic foot, can account for no more than 30% of the lifting power of a plane in the angle of attack on the under side of the airfoil, which must not exceed more than 16 or 17 degrees in its angle unless the power plant is able to pull the plane out of a stall or the speed of the plane is sufficient to carry it over the stalling point. Then there are the acrobatics which defy all the classical rules of conduct, except the instinctive reactions of the pilot trained in flying by the seat of his pants.

Now, analysis for this inquest is not directed at stunt flying. It is arranged to pass judgment on a few dead and obsolete laws, still in force, that are supposed to rule the performance of a plane able to carry great loads in its structure, great loads of freight, and great loads of personnel.

How does a plane weighing 72,150 pounds carry a load nearly of equal weight? How can 140,000 pounds of matter be supported in the thin, tenuous air of the higher altitudes? Where, in the atmosphere, does an engine of 2,000 horsepower find its reaction to this power?

The performance of a super-fortress or a large transport plane could be called an engineering miracle, or a miraculous phenomena, where the designers and builders with experimental *know how* are content to accept of 2% curvature lift and leave it to the mathematician or the physicist to sweat out the solution for the problem. This is one differential calculus that cannot be

presented without the material entity of dynamic forces are fully explained and identified. It is a problem where etherealism cannot be used to pull the wool over the eyes of the engineers with mechanical experience and technique in airplane construction; in fact, mechanology is one up on mathematics and at least two up on physics. This is one situation where theory does not antedate practice, where the unknown quantities of X.Y.Z. must come out into the open.

Besides providing a cantilever construction to the wing, the curved and cambered surface is built primarily to smooth out the flow of air to prevent turbulence about the wing caused by the separation and breakdown of the streamline flow over the wing surface. Even a perfectly flat wing with a small angle of inclination will produce whirling eddies on the upper surface which were never uniform in their effect, yet both the flat and curved wing have practically the same list when inclined to the air stream.

When an airstream comes in contact with the flat wing surface of a moving object it is abruptly deflected around the surface and creates a disturbance at the rear which acts as a drag on the forward motion. This drag is greatly reduced when the surface is cambered and streamlined to allow the air to glide over the wing smoothly. The glide of air over the wing is produced when it is a slightly greater distance over the wing (2%) than at the chord of the angle of attack. The effect of this speeding air is to create a greater surface tension that eliminates burbles and turbulence.

While it is apparent that the resultant forces that are responsible for the performance of a plane are fully employed and understood by the designers, after these factors have been proven by experiments and trial and error and the coefficients of the total force calculated and recorded with and by the performance of the plane, the identification of the factors compiled into the resultant forces are still unknown and invisible contributions of nature. If it were not so, these unknown factors could have been incorporated into mathematics to submit an answer to the question: Why does an airplane fly?

To reiterate that gravity is the major great force, the constant and indispensible electronic force that coordi-

nates the composite forces into a supporting medium is contrary to scientific opinion and will be regarded as fantastic upon presenting the claim. It is contradicting the teaching of the old masters, the academic curriculums and conventional mathematical formulas presented in support of a magnetic earth. To explain why an airplane can leave the ground, weighing tons, and fly into regions where air is so rarfiied that a man cannot live, an engine cannot operate, without taking oxygen along to sustain life, power and motion, one must disregard the mathematical formulas that propound impossible and improbable existing conditions, which mechanology has defied, denied and conquered.

The issue is: Gravity is a cosmic electronic line of force attracting the energy of matter to the earth: Or, it is not. There is no compromise.

To differentiate the issues, we can turn back to Galileo's experiment with the pendulum, which he used to substantiate the claim that the earth was a great magnet. An ordinary clock with a pendulum supporting a round steel disc for the weight will serve as an illustration. Start the pendulum swinging with the clock wound and the escapement will keep the clock ticking off the time as long as it is kept wound. The force applied in the escapement is so minute that it would have to be measured in ergs, yet this applied acceleration will keep the pendulum swinging indefinitely.

The philosophy of the pendulum is explained by Galileo, Newton, and their followers to prove that the earth is a magnetic mass attracting bodies to its exact center: That the attractive force of the magnetic earth causes the weight to fall toward the earth with the force of the fall carrying the weight through the length of the swing. The same force carries the weight back to be repeated over and over again until the resistance of the air finally brings the weight to rest over the center of magnetic attraction.

Now slip a bar or magnetic plate that is really magnetic under the pendulum and note if this philosophy can be verified. The clock will stop instantly.

Or, one can tie a steel ball to a string, suspend it over a bar magnet or plate with the ball close enough to the magnet to cause it to weigh one ounce, the weight of

the ball. That is, to be fair and equitable, the pull of the magnet should equal the weight of the ball. Now swing the ball on its course and it will come to rest at once over the magnet.

These demonstrations show conclusively that the attraction of a magnet, be it the earth or a mountain, or a star, cannot induce the swing of a pendulum. Newton tried to compute the weight of the earth by the swing of the pendulum although he made a very poor guess. Nevertheless, by and with some hocus-pocus line of reasoning, supported by a mathematical abstraction, Newton convinced his followers, and incidentally the world of science, that the earth was a magnetic globe. He convinced science that the pull was universal. He also explained that the center of gravity pull of a mass was so far from the object falling toward the center of this pull when at the surface of the earth, that it was caught in the middle of the pull or lines thrown out by the magnetic earth. This concept upset, in its scientific manner of thinking and speaking, the ordinary conception of a physical force or a material entity, which left gravity in the category subordinate to a divine dispensation. This was acceptable to the intolerance of theology and saved Newton from the fate of Galileo who had to renounce all of his scientific beliefs and experiments under duress.

Now let us use the same illustration to demonstrate the gravity electronic lines of force. With the action of the G. E. lines of force the swing of the pendulum is produced by the gain in attraction of stationary bodies over the loss of attraction in bodies while in motion. For example, the momentary stoppage of the pendulum at the end of its swing is accompanied with a slight gain in weight. The motion of the pendulum on its downward course and across the distance it travels causes it to lose weight, with the force of the downward motion equaling the rise of the weight on the opposite side of the swing where it recovers the same coefficient in the stoppage.

The corollary in this movement is: That the weight in motion across the G. E. lines of force bend the lines to reduce the vertical attraction, where the differential in the drop and rise are equal, which creates a hori-

zontal pull on the weight in relation to the core of inertia of gravity.

This rule holds for any moving body traversing the G. E. lines of force. That air resistance is a very minor retarding force is evident in the length of time the pendulum will swing without an accelerating force and the very small amount of force required to keep it in motion. These experiments should expose as erroneous the theory that the earth extends magnetic lines from its surface or from its core. Then there is another demonstration, one of the best, that is so convincing there can be no doubt about the G. E. lines of force. This is shown with the gyroscope, an instrument used to harness the G. E. force in many ways. Scientifically, the definition for the gyroscope is: Any freely suspended rotating body. The technical definition states that it is an instrument making use of mechanical forces developed by rotation and the composite resultant forces of the rotation. Now the only force that can be developed in the rotation of a gyroscope is inertia, and the only method for developing inertia as a resistant torque to force, is to concentrate the G. E. lines of force into a core or axis of inertia by the rotation of the energy of the mass in the rotor or flywheel. The mass being the rotating disc or flywheel rotating on an axis with near frictionless bearings and mounted in a universal oscillating retainer.

The inertia force generated in the gyroscope, as of bodies crossing the G. E. lines of force is, and as in moving bodies crossing these lines, greater as the velocity of the motion increases.

In the vertical position of the flywheel, that is, when it is perpendicular to the lines of force, the rotational velocity acquires an inertial resistance torque just about equal and opposite the G. E. lines for force. This follows from the circumstance that one force travels with the G. E. force in their direction while the other flows directly opposite that motion, which cancels the one motion with the other and produces an inertia to torque load practically equal to the force of both motions. Thus we see the G. E. lines of force negated in the motion of the energy of the mass for the energy of gravity

attraction. This could *not* happen if gravity was an extruding magnetic force.

The gyroscope inertia force always acts at right angles to the plane of motion of the axis of the flywheel. It is entirely independent of magnetic forces. In the gyro-compass the directional lines are obtained from the rotation of the earth and do not depend even to the slightest degree upon the earth magnetism. The stationary stability of the axis of inertia is exhibited when the universal mounting permits the pointing of the axis to any star in the sky. As the heavy flywheel is made to whirl in its mounting, in moving the gyro from place to place the axis of inertia continues to point to the star, apparently altering its directional lines in relation to bodies on the earth. However, if the axis is pointed to a celestial star which is fixed in respect to the inertia of the earth, no alteration takes place.

Now we can imagine a cone or axis of inertia is being built up by the rotation of the flywheel which extends as a cone along the axis of the spinning wheel and at right angles to the plane of rotation. This inertia column can be accepted to be the G. E. lines of force spinning with the flywheel in a horizontal, vertical or an angle to the direction of the G. E. lines of force. The reason for the inertia cone, which exhibits a resistance to a torque load, is occasioned by and with the attraction of the gravity electrons for the energy electrons in the mass of heavy metal in the flywheel.

When the gravity force is arrested to form the inertia column, it is to be assumed that the G. E. lines are the force that resists the torque load. The torque load is the load or force required to change the setting of the gyroscope when in motion.

We can further conceive that the component forces within the inertia cones are exclusively electronic with all matter in the form of gases of the air expelled at high speed by the centrifugal force of the rotation. Since the G. E. lines of electronic force are the attractive quanta for the energy in the rotating flywheel it follows that the electronic content of the inertia cone is derived from this flow of electrons. Thus we may assume that the cone of inertia extends to a distance proportional to the rotation velocity of the wheel and at

right angles to the plane of its rotation. This institutes a torque resistance in relation to the surrounding pressure influence of atmospheric pressure, electronic pressure and the G. E. lines of force. Two cones of inertia are created in the motion. The one extending above the axis of the wheel and the other built up in the lower axis when the wheel is horizontally rotated. The same effect is produced in the vertical position. The horizontal position will show greater resistance to the torque than the vertical. This comes about in the vertical position of the wheel by reason of the cancelling of the force of the G. E. lines in their movement with and against the rotation force, thus forming an invisible electronic journal in the air on which the wheel rotates. The earth surrounded by an electronic plenuum is just such a body moving in space with poles of electronic inertial cones created by the rotation of the earth, which are directed to point to Polaris.

The above analysis of motion further explains why bodies lose weight when moving across G. E. lines of force. Every body in motion develops inertia. Inertia is the relativity of the electronic energy of the mass of the body to the electronic energy of gravity. Since inertia tends to negate the force of gravity, a body loses weight when opposing the electronic lines of force. It gains weight when following the lines.

Not the least in the mechanics of flight is the importance of correlating the G. E. lines of force with the known demonstrated properties of air. Air power has been recognized as not one, but many things that early aerodynamists understood, *that not the least component of the resultant forces could be disregarded.* A full awareness of the principles and mechanics of flight dependent on the component forces was absolutely necessary for designing planes with balance and performance. Those actively engaged in designing, building, and flying these giant birds of the air have need for all the knowledge that can be presented to combat and correlate the mysterious actions exposed in the test chambers, the altitudes and the turbulent and changeable atmosphere.

The record of flight achievement, year by year, has proven that the aerodynamists have solved the problem

of reaction in the invisible and secret forces of nature, not by theory, not by mathematics, and not by extrapolation but by observing actual performance in a realistic and practical application of intelligent thought and study. This progress would have been entirely in order had the reasoning which has led to the success of the accomplishment been in concord with the theoretical and mathematical conceptions of contemporary science, a concept of ancient vintage irrevocably accepted and recorded in the annals of the history of science.

In a world progressively affected by the use of the airplane, few laymen understand the secrets locked up in nature's dispensations. Incidentally, few aerodynamists completely understand the nature of these forces except by the action to reaction. The disclosures of action in the performance of the plane is the sole source of knowledge for obtaining *know how* for designing the plane to take advantage of the reaction. Thousands of designs and models have been built, tested and flown. It is estimated that there have been over ten thousand different airfoils tested in the numerous wind tunnels of the world. The designer selects the model he uses on the basis of the character of the work he wishes to do with the plane.

There has been no difficulty in making a plane fly, for any flat surface would be supported in the air and carry the load of the plane if it was kept in motion. But an airplane flies because of what the shape does to the reaction it meets in motion. In other words, action and reaction were the dynamics that had to be under control. The action has been observed, plotted, measured, and recorded but the reaction, due to incomplete theoretical assumptions of ancient origin, the impractical mathematical abstractions that support the scientific conception of the atmosphere, and the all-important fact that inertia and gravity have not been coordinated dynamically, leaves the reaction components of the resultant forces to the observational factors of action. The experience gained by trial and error rules the concept of reaction to power, to the lift, and to the maneuverability of the plane in flight.

If we read any thesis on aeronautics, sooner or later Newton's law of interaction will be cited to prove a

cause in which air and gravity are the opposing forces. The only action or reaction Newton prescribed for gravity was that it caused all matter to be attracted to the earth. This is the dead line in physics where everything in the air with weight greater than air must fall to the earth unless air resisted the pull of gravity by the motion of the objects.

Gravity, whatever it was, pulled everything directly downward and was conceived to be a constant force constantly pulling the object toward the earth. Since gravity had no physical or material identity, it was regarded by the force it exhibited, as something in name only that had the power to cause all bodies to fall to the earth.

There is a term invented that overcame the force of gravity when a body was hurled with explosive force parallel to the earth's surface. This force is momentum. The force of momentum carried the body in a straight line of flight until the air resistance retarded the speed of the body to slow it down to a velocity where gravity could again function. Geometric lines, curves and planes have been calculated to a precision by practice that leaves no doubt about the correctness of these experiments. But who can disclose the precise point in the flight where momentum ceases to annul the force of gravity and allows gravity to take over to cause the trajectory of a body carried by the force of momentum. This is a problem in motion, although the engineers in ballistics probably can tell how, where and when this curve of the trajectory occurs in target practice. But there is a definite limit in their observations and calculus in regard to the part gravity takes in these demonstrations.

Now if we inject the G. E. lines of force into the equations, it may be calculated that the gravity force did not pull the projectile toward the earth until the velocity of the projectile was reduced to equal the velocity of the G. E. lines of force. The velocity coefficient of the G. E. lines of force can only be calculated from the observed effect they produce on falling bodies, less the effect of air resistance. Records show that a man falls five miles freely from a distance of 29,000 feet at a velocity of about 190 miles per hour. This is about 280 feet per second. But the kit he was carrying

greatly retarded his descent by the resistance of the air. Assuming that a plane will fall freely head down toward the earth and vertically at a velocity of 300 miles per hour, and the air resistance is the same as the cross country flight, 33%, the flow of G. E. electrons could be estimated to be about 400 miles per hour or approximately 580 feet per second. In a power dive the plane reaching 700 miles per hour would be descending toward the earth 300 miles per hour faster than gravity, providing the plane was in a vertical dive. It is highly probable that a plane can fly no faster in level flight unless it can exceed the velocity of the G. E. lines of force.

It is the constancy factor of the G. E. lines that produces the greatest factor for the dependability, the inertia and the reaction to power, affecting all of the resultant forces of air, electrons, and G. E. lines in the reaction, i. e., the inertia of air is the weight of air caused by gravity. The inertia of the electronic pressure of the atmosphere is likewise subject to gravity and the inertia of gravity electrons is the attraction of the energy within moving bodies for the G. E. lines of force. Thus the vertical power dive is encountering a reaction foreign to the design of its structure when the speed exceeds the velocity of the G. E. lines of force. Aside from the compressibility of the gases met in the dive, the plane when descending at this velocity runs into a reversed force of gravity that is met in no other atmospheric condition or tests in tunnel wind flow. For example, when the plane reaches the velocity of 400 miles per hour in a vertical dive, it is emerging from all force of gravity; when it enters the gravity force at about 500 miles per hour it is flying directly against the force of gravity.

The critical period in the dive is reached when the plane leaves the G. E. force and enters the retarding force. Here is the point where old man gravity suspends his support to flight. The inertia forces are completely washed out. This is the place where all controls go haywire, where little gremlins take over and make the best fliers lose control. The ship is bouncing, turning, fluttering, like a falling leaf. The pilot gets a case of suspended animation as nothing responds to his touch.

In a few seconds he enters the pull of gravity, in reverse, and wonders what happened back there in that air between 400 and 600 miles per hour. His position is now where gravity actually helps again to pull the ship out of the doldrums, the S.O.S. (Suspended Operations Surge) of the flight. This is the spot where the pilot has only a few S.O.S. (Seconds of Security) to decide whether it is S.O.S. (Safe or Sane) to S.O.S. (Stay on Ship) or S.O.S. (Slack off Strap) to S.O.S. (Step off Ship) and S.O.S. (Swing on Silk) to S.O.S. (Save Own Skin). This is operation "S.O.S."

Now it would be nice to know how the three forces: G. E. lines, electronic pressure, and air pressure are apportioned in the resultant force necessary to fly a plane, the coefficients of which should not be difficult to determine when correlated with the performance of various wing surfaces and power plants. For the record let us make a guess as to the coefficiency of each of these components.

It is known that air alone can account for only about 30% of the lift: Electronic pressure registers about 7% more than air pressure so we can assign 33% to electronic pressure. Now by previous processes and experiments the G. E. lines of force, the free electrons of the atmosphere amounted to 33%. Thus the set-up is:

30% air pressure
33% electronic pressure
33% Gravity Electronic lines of force, and
4% to Bernouilli's theory.

Which is the composite of resultant forces necessary to fly a plane at standard atmosphere. It is to be conceded that these components are variable with changing air and atmospheric disturbances, excepting the attractive forces and the inertia forces of the G. E. lines of force which are constant.

While it is probably realized that inertia is an important factor in the forces contributed to successful flight, the paradoxical conception of inertia prevents the incorporation of such indefinite principles into the composite of required forces.

When a body is at rest it tends to remain at rest, this is the property of matter called INERTIA.

When a body which is moving tends to continue mov-

ing in the same direction, this property of matter is called INERTIA.

The property called inertia in matter, then, is a physical force in, or about matter when at rest or when in motion, which implies that the stabilization of a body or a body in flight is the physical force of inertia inherently within or enveloping the body with a material entity capable of executing this force.

Now if we review the previous premise where the G. E. lines of cosmic energy attract and are attracted to the electronic energy of matter, it can be conceived that this property in matter, inertia at rest or in motion, is the attraction of the energy of matter for the energy of gravity and vice versa.

Thus inertia is a physical force identified with the gravity electronical lines of force instead of being an abstract symbol for an observational effect, in fact, two effects. The premise also provided inertia with an active living force with form, with existence and the force of motion that accounts for the torque and the directional stability of masses in motion.

Inertia can be described as the G. E. lines of force warped into a force by the state of motion of the mass with an inertial torque proportional to the velocity of the body. Therefore, the body in motion continues in the same direction by the resistance of the force of inertia which tends to retard the motion by its reaction.

In general, the binding, twisting, whirling, spinning and deflection of the G. E. lines of force by motion, create the composite forces of flight, which is inertia. Moreover, inertia negates the force of gravity toward the earth to the extent of the change in direction it causes the G. E. lines to travel.

Thus, the pendulum swings by losing weight when in motion and recovers its weight when momentarily parallel with the lines of force of gravity.

The gyroscope develops a torque resistance by the rotation of the gravity linear forces and a plane flies when it bends the lines of gravity, all of which produce a loss in weight of the body, or attraction for the earth, in proportion to the velocity and the weight.

This is a very important factor in the flight of heavy planes, more so than with the lighter craft. A compari-

son of the ratio of wing surface of the two, the transport and the popular light-weight planes, shows that the air movement is more effective in supporting light planes than the heavier ones. The air movement that practically supports the light plane cannot possibly be the sole support of the heavy plane or the resistant action to the propellers that pull tons of plane and load through the atmosphere.

A light plane of 140 square feet wing surface weighing 1400 pounds loaded will leave the ground at a speed of 50 miles per hour.

A superfortress of 1752 square feet wing surface, weighing 140,000 pounds loaded will leave the ground at 100 miles per hour.

The equation is 140/1752x1400/140,000x50/100. This shows that the larger plane with only 12½ times the wing surface flies away with 100 times the weight of the smaller plane at 2 times the velocity. In other words, two times the velocity of the inertia force generates 100 times the force to carry the loaded larger plane. It also generates the resistance of 8000 horse power of the superfortress to transpose the weight-inertia into pulling power, compared to 80 horse power of the lighter plane.

In other ratio we have 100 times the power plus 100 times the load plus two times the velocity transposed 100 times as much inertia reaction into lifting and pulling force; the lifting area being 12½ times the area of the smaller plane.

Now if we recognize and accept the claims of science and the physicists that a 2% speed-up in velocity over the cambered wing surface (Bernouilli's Law) is responsible for up to 70% of the lift of either plane, is it any wonder that mathematics is of but little help in designing planes that will fly, except in the calculation of observational effects.

Weight-inertia is a quantuum exponent of motion of bodies times the electronic forces of gravity and electronic pressure that has not been recognized. Consequently these forces have not been a component of forces or an exponent in mathematical calculus. In fact, by leaving these vital forces out of the formula, science has been unable to present a theory of flight

that is incontrovertible. The discovery of electronic pressure is coincident to the analysis that supports an electronic line of force for gravity. We must regard electronic pressure in the atmosphere and the gravity lines of force as being relatively isodynamic by reason of the structural compatibility of electronic forces. The same reason can be advanced for the attraction for and by these electronic forces of gravity with the energy of matter, which is also electronic.

While the G. E. lines of force are a constant attractive force, the electronic pressure weight shows that there is a variation in electronic pressure weight that is greater than air pressure registered at the same dates on the barometer. Yet the pressure of electronic pressure is more stable and settled over a longer period of time. This differential is in relation to the sun's angle of incidence and is inversely pro-rata with air pressure.

There are also pressures above the surface that appear to be electronic pressure advections that are occasioned by the inversions of temperature in the lower boundary of air convection currents that register different pressures for the different elevations, and take on the characteristics of electronic pressure fronts and recessions with the advance of temperatures across meridional lines.

A study of these pressures over a wider area may bring added features that will be helpful to meteorologists. These changing electronic conditions must affect the conception of the atmosphere as they occur in a regularity that implies a revolutionary process of energy and pressure is in motion which may account for many phenomenal disturbances in the atmosphere.

For the present we are interested in knowing *why an airplines flies.* Why an airplane apparently defies nearly all the laws of physics, aerodynamics and the present concept of gravity, and, if possible formulate a practical and workable theory of flight. So much of the air of the atmosphere is compressed by electronic pressure and the gravity lines of force into the lower levels that approximately one half of the air lies below the altitude of 3½ miles. At a mean of 59 degrees F. of temperature at sea level it is calculated that a column of air one inch square extended to the upper limits would

weigh 14.7 pounds per square inch. At the altitude of 25,000 feet the pressure would be 5.45 pounds, at 40,000 feet about 3 pounds p.s.i. on the mercury column. The electronic lines of force of gravity are constant in an electronic pressure which is assumed to increase in pressure inversely with air pressure. This does not hold true for all elevations as tests have shown that the pressure varies in convections of warm air ascending and cold air descending which extend these pressure areas into advection levels of electronic pressure.

Nevertheless, airplanes do fly where the air pressure is thinned until the loss of pressure is obviously inadequate to support the plane. This loss of air pressure *must* be compensated by and with other forces or the plane would be unable to reach these limited air pressure altitudes.

In a realistic approach to the subject it is apparent that the air lift of a plane is practically reduced to 15% of its coefficient at the surface of the earth, that is, at fifty thousand feet the lift is reduced this percentage; the reaction to engine power is likewise reduced and there is very little of the Bernouilli effect remaining to provide lifting force or pulling power resistance, which leaves only inertia and electronic pressure as the remaining components for flight. The performance of the plane is thus recovered in these forces of electronic inertia and the plane continues to perform in the exact ratio to the loss of air.

Now there is a rule regarding inertia forces that should always be observed, i. e., the greater the weight of a body, the greater the inertia force. This is the law of momentum. The law is tersely stated in Newton's law of motion in more or less an abstract manner because inertia is not fully explained. *For every action there is an opposite and equal reaction.* Now if it were possible to measure the reaction of inertia, or to define its physical existence as a force, or disclose what force of motion causes inertia, then the law of interaction as Newton propounded it could have been applied to the physical problems of flight. We would then know from where the reaction to an engine of 2000 or 3000 horse power was obtained. Since it is evident from proven tests that air can account for no more than 30% of the

lift and pull of a plane, the major constant reactionary force to lift and pull must be ever present in the electronic forces.

In the previous outline we have then, the dynamic forces of the G. E. lines of force coordinated with the electronic pressure of the atmosphere as the constant component, subject to the variations of the electronic pressure, for conversion by motion into the resultant force necessary for action and reaction.

This component is demonstrated in the swing of a pendulum, where the motion of the weight bends the G. E. lines of force by the attraction of the energy in the weight mass for and by the lines of gravity.

It is shown in the gyroscope how the rotation of the energy of mass (flywheel) spins the lines of the G. E. force into cones of inertial force.

It is illustrated in the momentum of a projectile how gravity lines of force are the retarding force that limits the trajectory. And it is shown in falling bodies that can fall no faster than the G. E. lines of force pulls them to the earth. Thus the body in motion tends to move in the same direction with its axis of inertia force which is produced when a body in motion opposes the G. E. lines of force by the attraction for the body.

The part outlined in the foregoing analysis about the coefficient of air pressure will be vigorously protested by physicists and aerodynamists, due in the main to the habit of referring to air power, air dynamics, air vacuums, air pressure, and aeronautics, etc., as the sole instrumentalities for the support of planes, balloons, airships, jet planes, rockets and parachutes.

Consider the parachute: It requires a chute with a surface of 450 square feet to lower a man weighing 200 pounds *against* the air pressure and check the descent to 16 feet per second. This illustration should be recognized as a perfect demonstration of the resistance of air because the chute is descending with the G. E. lines of force. Nothing but air is employed to check the fall. Electronic pressure, by reason of the minute displacement of electrons, would permeate the silk and have no effect in checking the descent.

The 450 square feet of the surface of the chute is three times the wing surface area of the plane from

which the trooper just dropped, yet it carried seven times the load of the chute or 1400 pounds compared to 200 pounds. The plane is flying across the G. E. lines of force, the trooper is falling with them.

Greater yet is the disparity between the area of the superfortress. The wing surface of the larger plane is only four times the area of the parachute. It carries 700 times the weight across the gravity lines with four times the wing area.

A balloon does not rise into the air by the displacement of the air in the bag with lighter gases, because the pressure on both gases is the same. A vacuum will not suspend a body in the air. Balloons ascend into the atmosphere because the gas in the bag has a much less specific gravity in the electronic pressure than air in the same media.

The electronic pressure is the medium in which the gas in the balloon finds the reaction to ascend against the gravity lines of force.

An airship rises when in motion and settles when the motion ceases. Traversing the G. E. lines of force tends to reduce the attractive force (weight) of the airship.

A jet plane does *not* find the reaction to its full power in air pressure. Jet planes fly at higher speeds where the air is absent and where the displacement of electrons by air is least. Jet power is almost exclusively an electronic inertia reaction. The same forces apply to rockets.

Nor can a plane with a power plant of 8000 horse power be satisfied with the resistance of air, either in pull or push or lift, action or reaction, low level or high level.

An automobile is limited in speed on the surface of the earth to the velocity of the G. E. lines of force that cause it to contact the earth by its weight. At that the inertia force plus the air pressure must be so directed that it will not rise into the air and fly. Four hundred and three miles per hour has been recorded but much more speed than this is built into the car if traction could be maintained. The car wants to fly, it would fly if the power could have been applied in the air. The weight of the racing automobile at a speed of 403 miles per hour practically reduces the weight of the car in re-

lation to the earth to nothing. Inertia of motion in the bending of the lines of gravity negate the pull toward the earth.

Even a large boy can skate over very thin ice if his speed is maintained. He can skate on ice swiftly that would not support his weight while standing still.

In all of these instances we see that motion, by bending the G. E. lines of force parallel to the moving body, cancel the laws of gravity by the inertia produced in the motion of the body. The degree of negation depends on the velocity of the body in motion.

If a reference frame is placed around an airfoil or wing in a cross sectional view and with the G. E. lines of force showing the bending effect of the motion, while flying into the lines of inertia in ratio to the velocity, the negation of force of gravity by motion can be disclosed to a mathematical certainty.

Starting with perpendicular lines of G. E. when the plane is stationary, the velocity in miles per hour will be represented in curves from 0 to 400 miles per hour. The curve at 400 miles per hour would be horizontal in relation to the earth and the plane, or at angles to the plane of motion.

In such a position the wing is pulling against the force of gravity which institutes an inertia retarding force nearly equal to the normal pull of gravity toward the earth. In another view, when the G. E. lines of force are bent by the wing when traversing the lines with the same velocity of 400 miles per hour, the gravity pull is an inertia force pulling directly opposite the direction the wing is traveling when in level flight.

A deviation of the direction of either up or down motion will be reflected in a gain or loss of the negative reaction of gravity, that is, when climbing the wing gains lift as it is working against gravity lines; when descending it loses lift by flying with the gravity force.

A plane weighs absolutely nothing when traversing the G. E. lines of force in level flight at the speed of 400 miles per hour. The fact is, the plane is virtually wrapped up in the inertia force generated by its velocity across the gravity lines.

Thus the inertia gradient is indexed on the graph in direct proportion to the velocity of a moving body and

the gravity quotient (weight) of the moving body is equal and incident to the inertia gradient.

This illustrates the electronic phase of the action against the reaction components responsible for carrying heavy loads on the wing structure of the powered planes or it may be termed the gravity suspension stage of the flight. Now the power stage with its high powered engines acting or pulling against the electronic reaction, is more dependent on the electronic forces of the atmosphere than the lighter powered planes which have a greater proportional wing surface.

It is but natural that a low powered plane cannot lift the load of heavier and more powerful planes if it cannot get up the speed with its power plant. It cannot produce the inertia force that negates the force of gravity. Yet, if a larger and more powerful engine is mounted in a plane with the same wing area the plane will carry a much greater load. This fact has led many fliers to believe the power plant is responsible for the support of the larger load. Of course the high powered engine flies away with a load on the same wing area but it does not lift the load except on the angle of attack, which again places the load on the wing area. This problem takes us back to inertia again, where the greater the load in weight, the greater the electronic energy in the mass; the more electronic energy in the mass, the greater attraction for the G. E. lines of force; the greater attraction for gravity, the greater force to generate the inertia retarding force, thus requiring a higher powered engine to get it into motion with a more acute angle of attack of both the propeller and the wing, but the same wing carries the larger load.

The reaction to the power plant is also concealed in the invisible electronic forces in the atmosphere. A screw action into this inertia component cleaves a section of electronic pressure, G. E. lines of force and the components of air to pull the plane against the same forces. The screw which acts like an auger, sometimes called an air-screw, at other times a propeller, should be termed pro-puller for its action does not propel or push by the reaction of banking the air in the rear of the prop. Airscrew is certainly a misnomer, for air banked behind the prop creates drag. An auger must

be sharp and kept clean if it bores its way through any matter.

The explosive noise produced by the propeller of a plane, which is often confused with the exhaust of the motor, is usually attributed to the sudden collapse of air in the wake of the prop. Now the air in the atmosphere is under a definite pressure. The pressure is universal and uniformly dense at the different altitudes. When the prop moves the air into the slipstream, the flow is a balanced column of air passing to the rear of the prop. There can be no breaks or intermittent pulsations where air is concerned. The rotation of the prop is also constant. The noise coming from a prop with air only as the pulling load could only be detected as a hum or gentle purr, with no break in the motion and no gaps in the reaction. Air alone cannot be the cause of the bark of the prop.

The analysis for this noise is: Since the G. E. lines of force are traveling toward the earth at an estimated velocity of 580 feet per second, the one secant of the periphery of the prop is always rotating against this downward motion of the G. E. lines while the other secant is traveling with them. This causes a heavier load on the torque moving against the G. E. lines and a lighter load on the secant moving with the lines. It is in the over-lap or readjustment of the electronic inertial forces that results in an explosive report for each revolution of the prop.

For example: With a motor turning up 2000 r.p.m., 2 blades of 6 feet each, a perimeter velocity of the prop would be 1250 feet per second. Thus the resistant force of the blades moving against the 1250 feet per second would be augmented with a resistant force of G. E. lines to the extent of 580 feet per second or 1830 feet per second of resistant force. In contrast: The blade on the downward cycle of the secant is moving with the G. E. lines and is relieved of 580 feet per second which acts on the prop to reduce the resistance force to 670 feet per second. The ratio is then 1830 to 670 which splits the torque load into two distinct forces.

The exact differential in the dynamic relativity of the two secants of the plane of motion is found in the velocity times the resistance times the square of the area

of the secants, which must be computed with the centrifugal flow of forces toward the periphery of the prop. This equation does not have to be set up to show where the bark of the prop occurs. It is simply a big gap in the torque forces between the two secants in the plane of motion, where the angle of attack across the G. E. lines of force governs the intensity and character of the explosive reports.

Actually if we are to be governed by the true resistance of air only, that is, air without any electronic force in or about its composition, the descent of the parachute presents the nearest demonstration of this condition of air. The resistance of air disclosed in the area of contact with the air, the limited amount of weight it will descend with safety, and the speed of descent all point to the fact that air reaction to wieght is of but slight importance in the pull of a propeller. If we apply this knowledge to the force of air resistance and regard air as the sole component force of propulsion or pull, the pulling power is less than 5% of the total reaction necessary for flying. The ratio is 140: 1400: :450: 200, for a low powered plane.

The reaction of conventional thought and beliefs to this statement will be: But we can feel the air when the plane is chocked and revved up with power.

Certainly one feels the air; one can also feel the pressure effect of electrons which support the air in the atmosphere. If the full power of the engine is extended one may be able to feel the power of inertia of gravity if he stands close enough. It will tend to pick him up and blow him down. Air loses the gravity forces soon after passing the propeller. For example, a plane capable of flying 200 miles per hour is chocked and the engine turned up to this speed. The air passed back by the prop should have the same velocity in the slip stream. Now if the atmosphere as a whole was blowing a gale of two hundred miles per hour, a person would be carried into the next county along with nearly half of the buildings and other et cetera, yet a man fifty feet from the prop can stand upright in the slip-stream.

The atmosphere, aided by inertia generated by electronic forces supplies the resultant forces for flight but the air component of the atmosphere (the atoms of ni-

trogen 78%, and oxygen 21%) can account for no more than the weight of this mixture and its inertia in an electronic supporting medium.

Whether or not this invisible electronic force can be simulated in wind tunnels is a moot question. The inertia created around a moving body is produced by the attraction of the energy of matter in the body for the G. E. lines of force when crossing these lines. A model plane in a wind tunnel is a stationary object, it is not crossing the G. E. lines; nor can it be assumed that it negates the G. E. force to any great degree. The model is not in motion and would induce no more inertia than a gyroscope suspended in the wind flow if the flywheel were not rotating on its axis. It is very doubtful that the full reaction to a prop can be disclosed in a wind tunnel where gravity is the stationary force with air and the electronic pressure the reactionary force in motion.

Nevertheless, out in front of a prop powered by a 3000 H. P. engine are the G. E. lines of force to provide a constant reaction to this action regardless of the speed of the plane. When the plane acquires a velocity equal to the velocity of the G. E. lines in level flight, gravity ceases to be a full retarding force of drag on the forward motion. To explain this loss of reaction of the moving plane, a glance at the reference frame will show that the inertia lines of force converge at the rear of the plane when the velocity of the plane exceeds the velocity of the G. E. lines of force. The convergence of horizontal lines of force with the vertical G. E. lines of force reduce the horizontal lines by dissipating their latent force into the vertical G. E. lines at the immediate rear of the moving plane. In relation to the planes weight with the attraction of the earth, the plane completely surrounded with inertia force weighs absolutely nothing. The weight is transposed into inertial drag, gravity is a horizontal force and velocity is maintained by the constant reaction to the power plant of the G. E. lines out in front of the plane.

In citing any of Newton's three laws of motion to confirm a concept, it places the seal of scientific approval on the mechanics involved in the theory in lieu of the knowledge of electronic forces. Scientists have

taken advantage of this since the revocation of Newton's corpuscular theory implied a license to disregard all reference to an electronic or corpuscular entity in matter or energy. The seal of approval does not apply to Newton's corpuscles or electrons of divergent energy qualifications. Science has attempted to explain the jet propelled plane without electronic forces in the atmosphere. They have quoted and interpreted Newton's law of interaction in such a manner that Newton is, no doubt, resting uncomfortable in his long sleep.

The anomalous logic used to explain jet propulsion is this: "The enormous heat generated in the combustion chamber by burning the pressured air and gasses is ejected with tremendous force from the jet at a very high velocity and temperature. The volume of these bundles of heat form a resistance against which the jet finds the resistance to propel the plane. This force is also conceived to take place in a vacuum when the plane flies above air pressure. The plane gains speed in this region."

Intelligent students of aerodynamics must learn this rote. The logic applied to jet propulsion, like Bernouilli's Theorem must be accepted by aerodynamists because there are no other principles that can be applied. They repeat the logic, when asked, to impress the layman that they know all there is to know about the subject. By trial and error it has been able to fly jets, so why should it be necessary to know the fundamental principles of heat, cold, temperature, or action and reaction.

The development of jet propulsion should be the most pertinent action that convincingly explains the reaction of an electron mass pressure in and of the atmosphere.

The great spontaneous expansion of electrons by heat, the acceleration, and the exchange of temperature in the mass of electrons are factors ignored in jet propulsion. For, science has consistently refused to abrogate the ether theory and recognize that material entities must be present to execute a physical force.

It is entirely possible that this attitude is the result of specialization, where each specialist inculcated with the inviolability of the classical laws with his earlier

education, can see no change in these laws is necessary or is reluctant to institute a research that would violate the concepts taught by a paternal hiearchy of scientific fraternities. However, continuous experimental progress has penetrated the wall of phenomenon engulfing the academic groove. This advanced thinking has brought forth the developments which are instrumental in engineering a new concept for solving atmospheric problems. The action of heat is a purely electronic reaction, with the oxygen magnetic field contributing its electrons to activate the electronic energy of the combustible substances, where the electron-volt energy of fire or sun energy finds the recipient and the conductivity in the electron mass of the Plenuum.

The spontaneous expansion potential of the electrons in the Plenuum, their electron-volt value and the polar attraction between the opposite poles of heat and cold creates an explosive reaction that would, if confined, equal the generated force of a charge of gun powder or T.N.T.

The fuel used to trigger the explosion is invariably the hydro-carbons that surrender their electronic complements of their molecular combinations. Hydrogen, carbon or oxygen atoms are not destroyed, yet they control an energy corresponding to the electrons in their atomic shells, which determines the valence of each atom in the molecule, combines the atoms into molecules and the integration of the matter.

The statement that a jet propels a plane by the heat reacting against heat, overlooks the fact that the plane is leaving that area at 880 feet per second when traveling 600 miles per hour. But, if the action of heat is recognized as the violent expansion of electrons thrust into an electronic pressure mass which gains pressure with altitude; and, that these electrons transmit the same expansion factor to the mass thereby expanding the mass into an explosive reaction it can be shown how the thrust of a jet stream is built up by the continuous explosion of the electron mass in the atmosphere.

After-burners increase the thrust by contacting more electrons. Furthermore, the shock wave produced with the take-off of a powerful jet is equal to the concussion of a large bomb or cannon.

The shock wave has shattered windows, shaken buildings and almost deafened persons standing quite a distance from the take-off.

The miscarriage of facts and factors in the revocation of Newton's corpuscular theory, was, perhaps, the greatest crime ever perpetrated against the material concept of physical forces. To be sure, the theory was not a thoroughly proven concept, but, it furnished the fundamental groundwork for a logical examination of Nature's invisible forces.

Science should not be content to continue beating about the mulberry bush of ancient symbolism for a solution of these energy contemporaries.

Mechanology, Technology, Aeronautics, Radiology, the Arts, Trades, and Professions are at present so far advanced beyond academic theories, that the philosophy of Theosophy, Mythology and the metaphysics of etherealism cannot continue to rule the concepts of Nature's forces in an Electronic World that inspires thought and molds progressive action.

THE ELECTRON

The ingenious developments made in electronics in the span of a generation marked by the ravages of war, depression, and the disruption of political ideals, is a remarkable advancement in the mechanization of the electron. The physical force of the electron, its existence as a material entity, its origin and source are, likewise, in the category of unknown quantities, yet, they are associated with the force of electrical currents.

The controversial concepts of electron entities which are free from atomic structure, creates an illusory and debatable subject. The electron, aside from using it as a means of measurement, was regarded as a term to describe an electrical charge. It was assumed that a charge of electricity produced the physical force in the flow, but disappeared into nothingness after the charge was expended.

Such was the academic concept of the electron before experimental engineers began their development of the art of electronics from the electron entities that flow in the electrical current.

It was learned that an electrical charge could be sent across the ocean with no visible means of conduction. Sound messages were transmitted with the charges. Pictures were transposed in the flash on an electro-magnetic screen. The electronic era came into the progress of civilization with the advent of wireless telegraphy.

The radio, radar, television, loran, sonar, remote control, etc., were developed from the basic knowledge advanced in wireless experimentation. Hypothetical channels in a hypothetical space were plotted and allocated to stations to transmit the frequencies, cycles and waves which synchronized with the conductivity of the various channels. Ether waves, generated by the cycles and megacycles of the current of electrons from the transmitter, were then assumed to be the medium in

which the signals and codes were transmitted from the sending station to the receiving station.

Thus academic science analyzed the electron and radionics to conform to the inviolable laws of a preceding generation which dates back to the logic of Seventeenth Century mathematical calculations, back to the Ether Complex, the electrical charge and the vacuous concept of space. A further confusing concept was the phenomena of electricity, magnetism and polarity, all of which are active in the science of electronics.

Electronics is a new science founded on the concept that electrons, however minute in volume, weight and energy value, are material entities capable of receiving, dispensing, and transmitting electrical currents. They have the property of attraction and repulsion; they have volume; they have weight; they have the ability to transmit energy.

The volume of the electron, at normal temperature, in comparison with the atom has been established as 1/100,000ths the diameter of the atom. The weight of the electron is 1, followed by 28 ciphers, or $1x10^{28}$ of a gram. The energy of an electron is the E-volt energy acquired when an electron travels one centimeter at the velocity of light, i. e., Einstein's equation where the electron is the mass traveling at the velocity of light, E-mc^2, where the mass is the electron m. and the c^2 is the velocity.

Thus the E-volt energy of the electron is correlative with its motion in an electrical current, a magnetic field or in the channels in the "Ether Space" of the atmosphere.

Now, ether space is regarded as an empty space, either as a vacuum or a void. Ether is nothing. It contributes nothing to the existence of either mass or matter. It appears that the ether is a figment of the imagination used expressly and figuratively to provide a non-resistant space to bodies traveling in space. It further complicates the mathematical equations by being carried along as the unknown quantity, where space, time and energy are infinite imponderables.

Two schools of thought were established: The academic theoretical concept of electrical charges, versus the utilization of charged electrons, with entity, weight,

volume and energy qualifications. However, both concepts are at a loss to explain the origin of "electrons", or whether electrons are man-made electrons from magnetic fields of force, a natural dispensation or supplied by the electrons of atomic matter.

Attempts were made to associate electrons with incoming rays from some undisclosed region in space. Then it was discovered that electricity was generated with atmospheric disturbances. This fact supported the claim that ether was susceptible to electrical forces.

Magnetic forces existed in the natural state in Magnetite. Positive and negative attractive forces of polar energy developed the Law *like poles repel, unlike poles attract,* but there were no entity of matter or electrons which could be involved in the attraction and repulsion of polar energy.

The inability to separate magnetic force from electrical force led to the compromise term "electro-magnetic current" in the flow of electron charges, because the electrons were invariably charged in a magnetic field. Static electricity was not considered magnetic. Static electricity indicated charged electrons at rest, or to be set in motion by friction. Galvanic electricity, generated by electrolysis, was also considered as non-entities or electron charges with no relative magnetic association.

With this confused background, scientists have practically given up trying to solve the electrical phenomena; engineers and researchers in electronics do not bother, as long as they have an ample supply always at hand by simply plugging in an electrical current. Ten engineers were asked: *Where do electrons originate?* Nine pointed to a lamp socket. One suggested that they were from the atmosphere, supporting the theory by citing the generators in an airplane, automobile, and other means of transport. A rotating magnetic field charges the electrons magnetically and inducts them into the circuit. The electrons in the circuit are magnetized electrons from the atmosphere. He could not understand how it could be otherwise.

The logic of this claim was valid, in view of the known electrical potentials of the atmosphere, but, even if the atmosphere did contain free electrons, it does not

disclose the origin, the charge, the polarity or the energy value. Nor does the presence of electrons, free from atomic structure, explain how magnetism, electricity, temperature, air, gravity, ether, light, and moisture can exist harmoniously in the atmosphere and still have no common demoninator to act as the connecting link.

The unsolved phenomena of electricity from magnetic fields has confounded science for over a hundred years. Static electricity produced by friction is a mystery of 2400 years standing. The fundamental energy from magnetic forces is yet to be coordinated with or separated from the electrical phenomena. However, engineers in scientific research have adapted all of these electrical forces because a flow of electrons can be directed to do work. Trial and error experimentation with the flow of electron entities has produced many marvelous inventions in the scientific progress of civilization.

Science can be classified in two categories: Pure scientific research for the accumulation of knowledge. And technological science and experimental research in the hope of finding a pot of gold at the end of the rainbow.

Electricity has produced and is still producing the pot of gold at every outpost of civilization. The reward or incentive for research into the phenomena of electricity is not inducive for further research into the mystery, nor is it necessary to know where the electrons originate. Electricity is here. It is available to each and every person, every scientist and every experimenter.

Those scientific researchers who follow the academic concepts appear to be stymied by their own theories about electrical forces. With a phantom electron-charge delivering a physical force, and a physical impact for the propagation of light, sound, temperature and many other robot mechanisms, it is obviously true that the electron must be a material entity, for, there must be a material entity present to execute a physical force.

The "key" that should resolve the mass of conflicting concepts is involved in the single question: *Where do*

electrons originate? If the energy of the electron can be properly appraised and applied; if the supply of electrons can be determined; if the material entity of the electron can be proven; then it may be adapted to and shown to be the material entity of energy: *The fundamental unit of energy that enters into the accumulation of mass, the integration of matter, the energy of motion, and the natural dispensation of energy throughout the environments of the earth.*

Surely there must be a material entity present to execute the physical force of weight, pressure, temperature, fire, flame, light, polarity and events which are not in any way associated with magnetic or electrical phenomena. These forces existed on the earth long before the electro-magnetic phenomena was developed in the march of civilization. All of these natural forces are activated by the generic term energy which cannot be specifically identified with any fundamental entity or unit of energy with our present knowledge of electron charges.

The electron cannot be discovered by dissecting matter. It does not appear in chemical analysis. Although atoms are construed to be wholly made of electrons, they are too minute in structure to extract electrons from their shells or nucleus. The electron cannot be observed through the most powerful microscope. Their presence in fields or currents can only be analyzed from their mechanical and physical behavior. To discover electrons free from atomic, electrical or magnetic sources appears to be an insurmountable problem. Yet, it is known that electrons exist in many natural events. However, the most difficult problems that have faced science have been resolved and disclosed in the simple facts brought out in new discoveries.

While it is assumed that the atomic and molecular combinations contain energy and contribute this energy when decomposed by heat, fire or chemical change, the identification of the energy with electrons, with mass or with matter is vague, ambiguous and inconclusive. Energy under these circumstances is more of a mathematical symbol of work done, or to be done, than a real physical force or material entity. This is made more obvious when the accepted structure of atoms is devoid

of anything that could be construed or described as transmissible energy.

The same confusing logic is apparent when the ether, vacuums and a void are analyzed. Webster defines a vacuum, when complete, as a void. So, a vacuum or a void is space without matter in any form. A vacuum is supposed to have no weight. It is not affected by gravity. There is nothing in a vacuum that can respond to the force of gravity. It has always been contended that a vacuum or space devoid of matter, would have a tendency to float in the air pressure surrounding the evacuated container.

Now, these are the accepted facts that science has approved and is using when vacuums are under examination.

When measuring the weight of air exhausted from a vacuum tube, the process must always be done when the air at sea level reads 29.92 to obtain the correct weight of the air. If there is a greater or lesser weight to the evacuated weight when the air is correspondingly greater or less, then the differential must be computed from sea level pressure. This comes about because there is a difference in the weight of the air with highs and lows on the barometer. This is just about as far as science has investigated the differential weight of a vacuum. The weight of the evacuated space in the tube has never been accorded a recognition by science. Every difference in the weight of the evacuated tube was air buoyancy caused by the increase or decrease in pressure of the air in the atmosphere. If the evacuation took place on an elevation of ten thousand feet above sea level, the air would weigh considerably less, but the vacuum would be as nearly perfect as at sea level.

In a laboratory test to determine whether a preheated glass bulb was better than a cold one for reaching the minimum of evacuation, three bulbs were used. One preheated, one at the temperature of the room and one at a much colder temperature. The procedure for exhausting the air from the bulbs followed the same method used in preparing glass tubes for neon signs.

A system of glass tubes and cutoff valves were attached to a multi-stage, oil sealed rotary vacuum pump. The pump had the capacity to evacuate within a few

microns of air weight. The glass tube leading to the pump was fused to the inlet of the bulb with a gasjet burner. The jet would be used to collapse and seal the inlet while the pump was still pumping.

A high tension electric spark was occasionally used while the air was being exhausted. The spark was trained on the outlet tube to distinguish the extent of the air flow from the tube. Air flowing through the glass tube reflected a bright white stream of light, diminishing as the bulb reached evacuation. The light turned to a violet blue as the vacuum was reached. The vacuum in the bulb also reacts with the flash spark by producing a violet flash from the inner components of the bulb as the vacuum is reached.

Now it is known that glass is a good insulator of electrical forces. Glass is non-conductive. Yet, the "ether" that was supposed to be left in the bulb after evacuation responded to the electrical spark, reacting to produce a violet flash throughout the inner space in the bulb.

This is evidence that implies a charged negative entity reacted with the positive electrons in the electrical spark. Entities of ionized or magnetized value that attracted the electrons of the current through the minute interstices between the atoms and molecules of the glass in the bulb. This was the deduction that conformed to the law *"Like poles repel, unlike poles attract."*

But, science had instituted a law which stated: *"The ether is susceptible to induction and conduction of the electrical current"*.

With all previous theories regarding the ether space as empty space, this law for the conduction of the electrical or magnetic forces, is simply a "law" because it was observed that electrical forces were conducted in an empty space or space that was assumed to be empty.

Up to this point in the test, we were ready to abandon any notion of refuting the edict of science. However, subsequent experimentation induced a re-examination of the facts regarding the presence of electron entities in the bulb which replaced the ether concept.

The continuous flow of violet-blue flashes up to the time of sealing off the bulb, indicated a supply of electrons was being drawn into the bulb from the free elec-

trons of the atmosphere. The minuteness of the volume and weight of the electron would permit penetration between the atom and molecular structure of the glass in response to the force extended to evacuate the bulb. Furthermore, this same force would overcome the attraction inherently between the free electron and the atomic composition of the air adjacent to the bulb. In other words, the electrons of the atmosphere would permeate the glass but the atoms of the air would be excluded.

If this deduction were true, then a vacuum is not a void. A vacuum was space filled with in-flowing electrons, either from the pressure of a mass of electrons or from the force extended in the evacuation. However, the experiment did not disclose the origin of the electrons or whether the free electrons of th atmosphere were sufficiently massed to constitute an active pressure component that would completely displace the ether concept.

In determining the degree of vacuo, by weight, a balance scale with apothecary grain weights was used. A liter of air at sea level pressure weighs 18.46 grains. The bulbs were carefully weighed before and after evacuation, with very small difference to show the effect of pre-heating. 18.1 grains for the cool and the normal ones and 18.3 grains for the pre-heated one. The advantage of pre-heating was negligible when the humidity of the air was low.

After completing the test, the bulbs were placed in racks with their record posted as C.N.H. for cold, norm and pre-heat. Several days passed in testing other phases of gases before they were disturbed. Upon weighing the bulbs six days after they were evacuated, the assistant called out "this bulb has sprung a leak, it weighs ten grains more than the record shows." That could easily happen if the seal was imperfect or cooled to fast to cause a crack in the glass. A microscopic examination did not disclose a cracked seal however. The other bulbs were hastily weighed and showed the same gain in weight. This could mean any one of three conditions: The bulbs had developed a leak; the loss of air buoyancy caused them to weigh more; or they had accumulated a greater quantity of electrons to increase the

weight. This called for a barometer to check air pressure.

A marine-type barometer was obtained, checked with the Coast Guard and hung close to the rack of bulbs. In checking the record with the Coast Guard over the past six days, it showed that the barometer had fallen eleven points, from 29.90 to 29.79 and was still falling. In the next three days the barometer fell to 29.57, a total loss of 33 points on the record. The weather was rough, cold and rainy. The bulbs gained 31 grains in weight. Would they regain their original weight? Was the vacuum in the bulbs a complete loss? How could the gain in weight of the bulbs be reconciled with the loss of buoyancy of air, when the weight gain was more than the actual weight of a liter of air, or the amount and weight of air displaced by the bulbs?

This gain in weight of the vacuum in the bulbs was confusing because it was thought that electrons could not enter through the glass of the bulb unless the force of pressure existed in the electron mass which enveloped the container. An electron pressure mass that was independent of air pressure, electrical and magnetic forces, yet, with the polarity phases of attraction and repulsion, would account for the loss or gain providing the atmosphere also reacted in the same manner in the lower boundary near the surface of the earth.

To this time, the vacuum had gained weight. The supreme test would be convincing evidence if the vacuum lost weight when the barometric condition of the atmosphere returned to normal or above sea level pressures.

In three weeks the weather cleared, with the bulb fluctuating back and forth in weight, finally reaching a barometer reading of 30.01, or more than 11 points above the original date. The bulbs responded by weighing 10 grains less than when first exhausted.

The differential in weight now amounted to 42 grains. A differential that was greater than two and one-third times the weight of the air in the liter displacement. This was unambiguous evidence that the air buoyancy did not cause the variation in weight. It was further evidence that an electron mass existed in the atmosphere in which air was suspended. The weight of air, 1.2

ounces per cubic foot also indicates that the weight of air is its specific gravity in an electron mass, where the mass supplies the pressure of 14.7 pounds per square inch.

Another problem was presented in the variable weight of a vacuum. If the vacuum gains or loses weight, does this change affect the vacuum. As no more air is added or taken away, the only change possible under these circumstances would be that the negative pressure of the vacuum would be less with the addition of electron pressure and more when the pressure in the atmosphere was less. The bulb did not lose its state of vacuo, but the electrons became more densely packed both on the inner and outer surface of the bulb. The loss and gain of air in the mass was thought to be by reason of the inverse loss and gain of the pressure in the electron-mass. This was later verified when an instrument was taken up to ten thousand feet altitude.

As it was not practical to transport a set of scales for further exploration of the atmosphere, a device was built for this purpose. Using a sensitive altimeter, all of the springs, vacuum discs and attachments were removed. The gears, dial, hands, and case were utilized by building an extension on the main quadrant shaft. This supported the bar which supported the bulbs, the pendant and weight. The weight, 365 grains, extended from the center of the bar to bring it to a horizontal position.

To eliminate any question of air buoyancy for a single bulb, two liter bulbs were attached, one with helium at atmosphere pressure, and the other a vacuum. Compensation weights brought the hands to a fixed zero position when the barometer registered 30.00. The device was enclosed in a transparent plastic case to insulate the bulbs from sudden temperature changes and air disturbances.

Helium was chosen for the balancing bulb because it was conceived that the atoms of helium gas would be more closely packed than hydrogen, thus excluding the electrons from the mass pressure. However, a metal weight used on the first devices appeared to have the same resistance to electronic induction from the mass of the atmosphere, but no physicist would discard his own

opinion of air buoyancy when a single bulb was used.

Now this device was not an invention, a development or an ingenious combination of mechanical principles. However, it did reveal a condition of the atmosphere which science has often suggested but not accepted. There appeared the problem of detection and proof that has held science from asserting that there was a component in the atmosphere which defied detection or measurement. Newton's corpuscles were rejected from lack of proof. Plank's quantels of hv were disregarded. Hertz's waves in an ether was pure imagination. There is no component in the atmosphere that will accomodate temperature. Temperature has never been defined. Air pressure is confused with atmospheric pressure. It is a physical impossibility for air weighing 1.2 ounces per cubic foot to exert a pressure or a weight of 14.7 pounds per square inch. Light in the atmosphere is unexplained. Cold is supposed to be the absence of heat, and the entity of heat has never been discovered. We have not been taught how air can support clouds that transport millions of tons of water, the thousands of miles from the seas. The weight of water cannot be correlated with the gaseous formula H_2O. The void surrounding the earth's atmosphere is a visionary antiology. No one appears to know why or what oxygen contributes to the vital energy of living; how it supports combustion; or what it contributes to fire. Science has failed to explain why sap flows up a tree.

Of course the discovery of an electron-mass, as an active component of the atmosphere, does not imply that the electron is a fixed or static entity in its volume, weight or energy value. Nor does it necessarily become the exclusive entity of electrical or magnetic forces.

There are the attractive and repulsive forces of polarity or polar energy that have been accorded but little importance in the integration of matter, substances and compounds, the propagation of light, the mechanics of temperature, the entropy of heat and cold, the expansion and contraction of the elements, the physical force of gravity, catalysis and chemical affinity, oxidation, fire, and thousands of unexplained actions and reactions listed under the category of causative phenomena.

If the electron-mass can be organized with the various phases of electron energy, much of this phenomena may be exposed. Obviously, the electron, as a generic term for the energy units of mass, is the most versatile and changeable entity of matter. It is the transmissible energy of the atoms, molecules and matter. It exhibits a million or more dfferent phases and stages of polar energy.

With the accumulation of its E-volt energy by its motion, it becomes active from absolute zero to ultimate heat, from its least contracted state to its greatest expanded state. With its attraction and repulsion as positive and negative polarity, its ionization and magnetization by the motion, its entropy in the exchange of temperature, its contribution to the sustenance to living and growing things, and to the very genetic existence to life, intelligence, and knowledge on this planet.

The most convincing data to confirm the presence of an electron-mass pressure in the atmosphere, which abrogates the theory of an ether space, was obtained when the instrument (Electro-nom-eter) proved consistent in recording the electron pressure in altitude tests, sea level observation, mountain terrain, desert areas, take-off and landings. Several thousand miles of travel, by land, sea, and air, from the Pacific Ocean to the Atlantic, from the Gulf of Mexico to the Great Lakes, with stopovers to make extended tests, furnished reliable data that disposed of any doubts or criticism.

Weather turbulence is a reaction in the Electronic Pressure mass due to temperatures. Sun insolation is an electron force measured by the meter where seasonal changes, angle of incidence of the sun energy induce cyclonic and anti-cyclonic periods. When a low barometer indicates a low air pressure, the electronometer invariably registers a high Electronic Pressure. Thus, it is conceived that the core of hurricanes, typhoons, cyclones, and storm centers are exceedingly high pressure electron-mass cones around which a lower pressure mass circulates by reason of their proximity to the extra velocity of the equatorial motion of the earth.

High pressure Electronic Pressure invariably preceded a cumulo-nimbus storm cloud. The low fronts

moving into air with high barometric readings is due entirely to the high Electronic Pressure in the area of the low air pressure. Advections from the polar regions of high Electronic Pressure and those from the torrid zones with low Electronic Pressure were detected and graphed at different altitudes. The high Electronic Pressure advections appeared to create the ceilings for clouds. These high and low Electronic Pressure advections probably will explain the crossing of meridional lines by temperature advections. For electrons are, in the last analysis, the infinitesimal E-volt units of temperature.

With the density, weight and spissitude of the electron-mass increasing with altitude, which may be the cause for the elevation and diminution of air, there is a compensation factor for the loss of air support in the flight of airplanes. Then there are electro-static lines of force which may be coordinated with the gravity electronic lines of force to complete the resultant forces for airplane performance which will permit a solution for the limited knowledge of air lift and propulsion. In other words, the Electronic Pressure provides the balance of power to mathematically determine *why* an airplane flies. It will not be necessary to introduce a false principle or to resort to the fallacious concept that implies a 70% lift or a 1/100 the part of a vacuous lift over the airfoil, by reason of the camber of the wing approach to the resistent force of air only.

Furthermore, jet planes, and rocket propulsion, with their ultra high temperature jet action, have a physical and material mass of electrons spontaneously expanding in the atmosphere and the altitudes to react with the heat to create a wall of explosive resistence for the thrust of the heated jet flow.

The adaptation of the electron-mass to physical forces does not change or interfere with any mechanical development or principle discovered by experimental or observational research. However, this knowledge of Nature's energy dispensation will, when organized, supply the *why, how, what, when* and *wherefore* that will disclose many of the causative actions and reactions now submerged in phenomena.

In the course of a decade of exploration research and

profound study of scientific specialism, the definite action and reaction discovered in the analysis of electron-mass predicates that the electron, with its accumulation of various energies in space, matter and mass, is Nature's supreme contribution for the dispensation and the execution of the primordial physical forces on the earth and its environment.